

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

62.61

DEC 30 1946

Agriculture

Gloeckner Chrysanthemum Manual

1947



Better Chrysanthemums

Some men collect stamps, others play with miniature trains, still others devote themselves to golf. Then, too, there is the *Gloeckner* staff who enjoy collecting the latest information on Chrysanthemums and who assemble it for you in this Chrysanthemum Manual.

At one time the chrysanthemum crop was considered a catch crop and during the past several decades the popularity of this flower has made it a main crop flower. With the advent of shading and lighting procedures this crop now can be had to flower the year around.

Other improvements such as cultured stock free from Verticillium wilt disease, soil analysis, proper time pinching, newer findings in disease and insect control, better varieties, have all helped in producing better chrysanthemums.

This crop must be carefully planned so as to select only good varieties and eliminate those that are poor and which generally clutter up our markets. The precision culture of chrysanthemums is here to stay and all good growers of quality stock are rapidly following this culture.

By buying from the specialist you can plan your crop to exactly fit your requirements. If your order is placed at the proper time you are reasonably assured of delivery on the date you wish to plant the stock, and because of this you can eliminate at least one operation by planting directly to the bench. In this manual we have collected the latest information on chrysanthemum culture. It is just a part of the *Gloeckner* service to keep you advised. We will gladly help you plan your requirements for the coming year.



15 EAST 26th ST., NEW YORK 10, N. Y.

LEXington 2-4197

At Madison Square

MUM MANUAL CONTENTS

Anemone Varieties	37	Novelty Varieties	26-31
Cloth House	11	Pests and Their Control	23-25
Chrysanthemums the Year Around ...	8-9	Pompon Varieties	34-35
Cultural Pointers	1-10	Pot Plant Culture	17-18
Garden Varieties	40	Pot Plant Varieties	38-39
Insects and Their Control	19-22	Shading Information	12-16
Large Flowering Varieties	32-33	Single Varieties	36

TERMS OF SALE

The minimum total order that can be accepted is 500 cuttings.

Fifty rooted cuttings of each variety is the minimum that can be supplied.

More than 50 of a variety must be in multiples of 50.

Unrooted cuttings can be supplied at \$12.50 per 1000 less list price and only in multiples of 250.

Better Chrysanthemums

C U T T I N G S

Cuttings taken from vigorous growing stock, free from disease and insects, rooted in sterilized medium and then removed from this medium at just the right time so as to have sufficient root system will give you maximum results in heavier production and better quality chrysanthemums.

Handling Cuttings

The cuttings you purchase are ready for potting or flatting. Many growers plant these rooted cuttings directly into the final location. Ordinarily they will not require shading, but if they have been several days in transit and have softened up some, or if they are planted during warm, bright weather shading with aster cloth or paper is advisable. Under no circumstances leave the covering on the plants during dull weather or at night. It is well to syringe the plants frequently until they stand up and are showing signs of growth.

Unrooted Cuttings

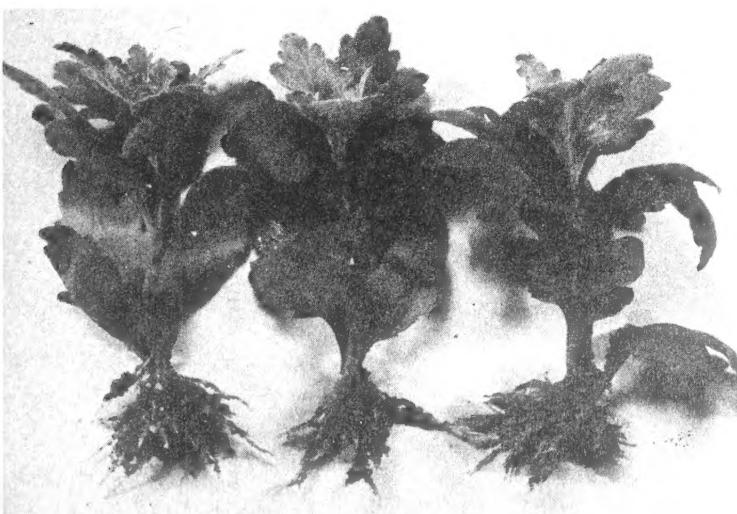
Recent trials have proven that unrooted cuttings can be shipped, and rooted at the destination with good results. Upon arrival sprinkle the cuttings and place in a dark, cool location until they become turgid. Stick the cutting into pots containing a light porous soil mixture. After potting, cover with aster cloth and keep the cloth and soil moist at all times during the day. Rooting will start within 10 days and then handle these plants as you would your other plants.

Delays

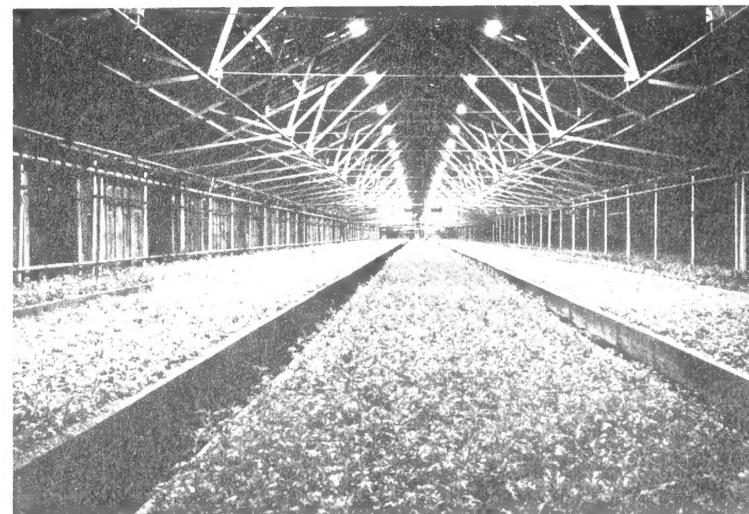
The Railway Express Agency has done a marvelous job during the past several years, but occasionally they have had delays. Chrysanthemum cuttings will be injured from cold as well as being too long in transit. If the cuttings are slightly wilted, they can be immersed in water for a short period and then planted. They will react perfectly to such treatment. If the cuttings have been slightly frozen, placing them in a cool room and thawing them out gradually, or placing them in a pail of cool water to take the frost out will bring them through so that they will do just as well as cuttings that have had nothing happen to them. Of course, if stock is badly frozen, or if long delays have occurred so that the cuttings are heated, yellow or rotted, a claim should be filed at once with the express company.

Air Freight

Air freight is prepared to serve customers who are close to an airport, by phoning them when a shipment arrives, or reconsigning shipments via Railway Express to customers who are too far away to pick up shipments at the airport. Our experience this past season indicates that this service is very practical for the delivery of rooted cuttings in the best condition.



Healthy Well Rooted Cuttings



Stock Plants Growing Under Additional Light

Cultural Pointers

SOILS

Chrysanthemums will grow well in a wide range of soil types but a fibrous silt loam is preferred. Blue grass sod to which rotted manure has been added plus an application of super phosphate will give excellent results. A soil that does not remain too open is preferred for this crop.

Acidity

Evidence shows that the soil reaction should be slightly acid pH 6.5, although in many instances a neutral medium does very well. If your soil tests slightly alkaline apply $\frac{1}{2}$ to one pound of agricultural sulfur per 100 square feet of area. However, if your soil is acid apply 3 to 5 pounds of agricultural ground limestone per 100 square feet of area.

Aeration

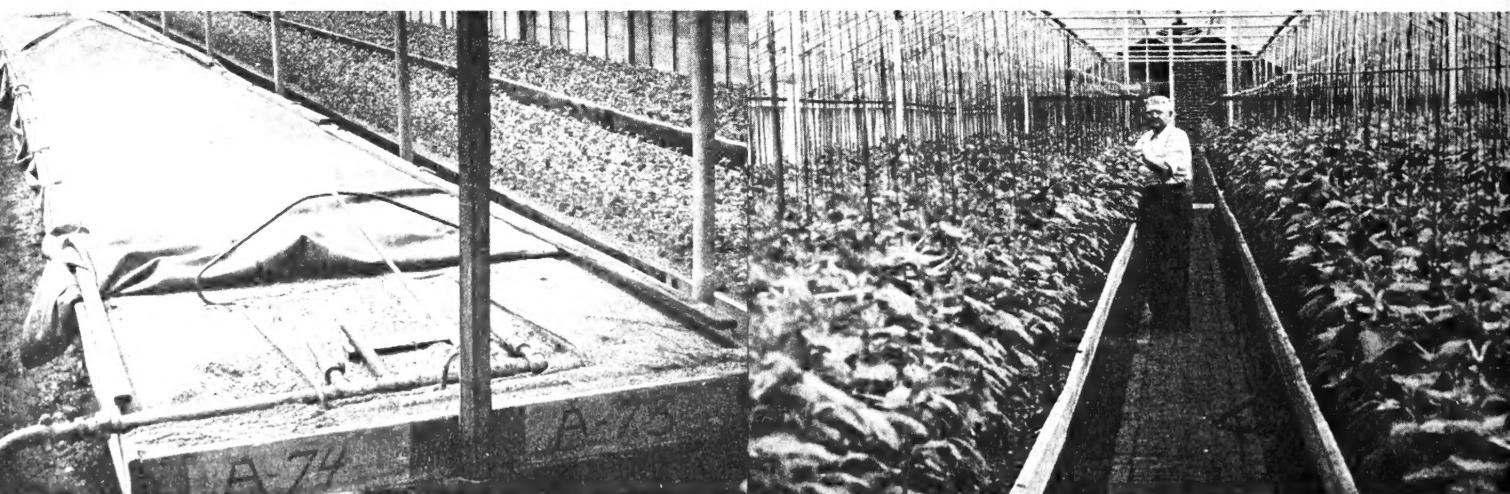
Proper drainage and proper aeration of the soil are very vital to good growth. Many times improper drainage of the bench or bed is the reason for a poor crop. No wet spots should ever be present. Soil drainage may be improved by the addition of various materials. Any coarse organic material such as manure, alfalfa hay or clover hay applied at the rate of not to exceed one fourth the volume will separate the soil particles sufficiently to increase pore space. Heavy applications of sand to a soil have not always proven of value to a chrysanthemum crop. Aeration may also be increased by proper cultivation of the soil. Frequent scratchings are recommended during the early growth of the crop.

Steam Sterilization

Old soil when properly managed will give comparable results with fresh soil. Add a quarter of the volume of humus in the form of manure or chopped alfalfa or red clover hay. Steam sterilize to destroy the verticillium wilt fungus as well as improve the structure of the soil. Steam sterilization may be done with the use of three inch tile or down spouting with $\frac{1}{8}$ holes drilled every six inches on each side of the pipe. Use two lines in a three and one-half foot bench. Ridge the soil to the center of the bench directly over the lines, covering with tarpaulin, canvas or sisalkraft. The Thomas method is very similar with the exception that the pipe is laid on top of the soil and then covered so as to make it airtight. The Thomas method is not recommended where purlin posts are in the bench. By introducing the steam in the center of a 100 foot bench and sending the steam both directions a more thorough sterilization is accomplished than if the steam were to be forced in at the end of the 100 foot bench. Cover the sides of the benches so that the entire bench and contents are heated to 180°F. Remove the covering one hour after the steam has been cut. This allows the excess moisture to pass from the soil as vapor. Leach heavily immediately after sterilizing to reduce excess fertility.

Chemical Sterilization

A chemical which has proven its worth is Larvacide. This material must be used when the greenhouses are empty to avoid injury to adjoining crops. This gas is applied in liquid form with a special applicator so that 2 or 3 c. c. are applied at 10 inch centers. The soil should be moist before applying. A good suitable covering should be placed over the treated soil to keep the gas in the soil for at least 48 hours although a water seal applied 2 to 3 times every 24 hours will suffice. The soil temperature should be at least 60 degrees or higher. When used properly you can expect favorable control of insects, diseases and weed seeds.



Thomas Method of Steam Sterilization

Supporting Large Flowered Mums

Cultural Pointers

PLANTING

Chrysanthemums grow equally as well on a raised bench or on a ground bed. The care is slightly different in that raised benches dry out more frequently during the summer and early fall months. It must be remembered that a good circulation of air is desirable, yet a direct draft is not advisable.

Planting Date

The plants to be shaded should be planted seven weeks before the shading date in order that sufficient growth is made to give necessary height before black cloth is applied. For normal flowering all planting should be done in the month of June. The plants should be established in the soil three to four weeks before pinching.

Planting Rooted Cuttings

Many florists are planting rooted cuttings directly into permanent locations. This not only reduces several handlings and production costs, but also produces a better quality bloom. We fully realize that it is often an impossibility for all to treat their chrysanthemums this way. However, we have found that young, soft plants are superior to hard woody plants.

When planting rooted cuttings either into 2 1/4" pots or directly into the bench, dip the cuttings, roots and all into a solution of **Fermate** 1 ounce to 4 gallons of water. This will establish the plants faster as well as protect the young plant from septoria leaf spot. If you plant in a cloth house or directly in the open be sure to add this to your must list.

Shading the Glass

When planting rooted cuttings into their permanent position it is necessary to shade the glass or to put aster cloth directly over the young plants until they are established. When shading the glass be sure that the material is applied lightly.

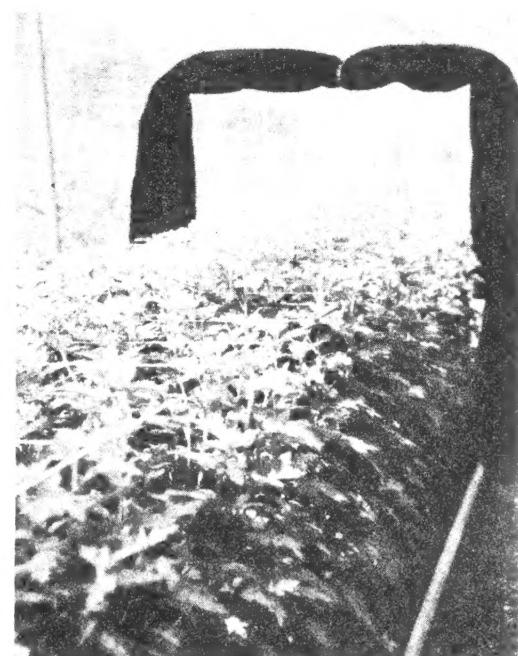
It is definitely advantageous to have some shade on the glass during the months of June and July when the light intensity is the highest. Cloth houses eliminate approximately one-third of the light and we all know what excellent results are obtained under this enclosure. Therefore, shading the glass lightly should likewise be beneficial. Remember not to allow the shade to remain on the glass too late in the season.

Distance of Planting

For good quality pompons we prefer to plant 7x8 inches or 8x8 inches pinched once, and thin the shoots to three per plant. Nothing is gained by planting at a closer distance. Light intensity should be high at the base of the plant for quality blooms and if planted too close we have lost their factor which promotes quality. Large flowered varieties are generally planted 8x8 inches or 8x9 inches, this also applies to disbud anemone and single varieties.

Several growers have had success by planting two plants to a hill, spacing the hills 10x10 inches, pinching once and allowing six sprays per hill. This will require a few more plants but it is claimed that when planted further apart it is easier to spray and string. A higher production per square foot is obtained.

Knowledge of the varieties, date of benching as well as your method of growing will largely govern the distance of planting.



Supporting Shade Cloth in Cloth House

Cultural Pointers

FERTILIZERS

Soil structure is the key to soil fertility. The response of chrysanthemums to fertilization depends upon a favorable soil structure. It is known that plants require nutrients, water and air for growth. Good soil structure will provide proper air and water relationships. Therefore, it behooves us to give proper attention to the soil before starting the crop.

Feeding

Chrysanthemums do much better right from the start if the soil is not too rich. Very often this crop will start off faster in new soil as compared with old soil that has been sterilized just because of the lower nutrient level in the new soil. When using new soil, apply 3 to 5 lbs. of super phosphate per 100 sq. ft. of area, plus a liberal application of manure before planting. Phosphorus moves slowly within the soil mixture. It should always be added before the crop is benched so that it may be mixed thoroughly into the soil. Two to three applications of a complete fertilizer, such as Electra, made after the plants become established and until color shows will be adequate. Electra applied at the rate of 2 pounds per 100 sq. ft. of bed is sufficient. Never apply fertilizers to a dry soil. Water lightly first, then apply the proper quantity of fertilizer, then water heavily. Remember that the plant is the best guide as to fertilizer requirements and that more mums are ruined by over feeding than by nutrient deficiencies.

When using sterilized soil the best recommendations to follow would be to analyze your soil from time to time. We have found that when the following nutrient levels are kept, good crops are the result. Nitrate nitrogen should be 10-25 parts per million; phosphorus 2-5 parts per million; potassium 20-40 p.p.m. and calcium near 150 p.p.m. To increase the nitrate level feed one pound of ammonium sulfate per 100 sq. ft. of area, and to bring up the potassium apply muriate of potash not to exceed 1 lb. per 100 sq. ft.

In the cooler weather and shorter days of September omit the nitrogen if the plants are growing freely. The mum assimilates more phosphorus and potassium during the fall when temperatures decline. Therefore, it is more desirable to apply a complete fertilizer shortly after the buds are visible.

Excesses

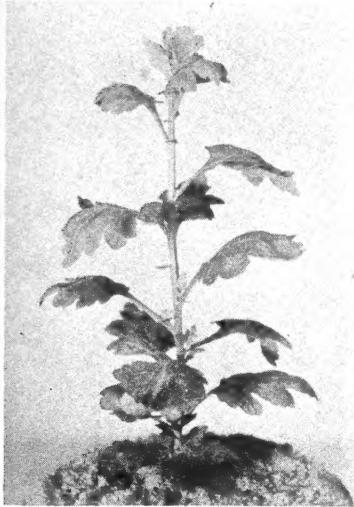
The foregoing pertains to plants that appear and behave normally. If plants are stunted, look yellow and sick, they are probably suffering from an extremely rich soil. Many greenhouse soils are excessively rich and chrysanthemums will not thrive in such a medium. If this is the case, the remedy is leaching with water. Lots and lots of it. Use more water than you ever applied to a bench before, two or three gallons per square foot. The water that runs through the soil carries with it the excessive plant food and allows your plants to recover from their indigestion. Did you ever notice fine healthy growth on a small part of a sick-looking bed of mums, and observe that it was under a broken pane of glass that allowed the rain water to come through and leach the soil below? Such a sight is a sure indication that the soil needed leaching. In most cases this condition is the result of the foolish and indiscriminate use of fertilizers. Use them when needed, but use them judiciously. Remember fertilizers are plant food in an extremely concentrated form.

Mulches

A mulch of peat, rotted manure, alfalfa or red clover hay applied two to three weeks after planting will help maintain a uniform moisture in the soil and increase the growth. The strawy mulches should only be used when the nutrient level is high as the bacteria remove the nutrients from the soil to decompose the strawy mulch.



Cloth House Structures Covering Two Beds. Black Cloth Is Drawn Over Camouflage Cloth

Cultural Pointers

Well Established Young Plant



Top Several Inches Removed



Strong Breaks Resulting from Single Pinch

PINCHING

For a good number of years the reason for pinching was to regulate the number of stems on the plant. In recent years we have learned that in case of pompons or singles the pinching determines the type of spray formation. With standards, pinching will determine the type of bud formation, whether it be a crown or terminal bud.

Time Pinching

The precision culture of chrysanthemums is all set-up around the "Last Pinch". To grow a quality pompon you should receive the rooted cuttings sometime in June and then plant into the permanent location approximately three weeks before the date listed in our list of varieties under "Last Pinch". When growing shaded pompons the "Last Pinch" should be 35 days before the shading date. With standards under black cloth the majority of varieties should likewise be pinched 35 days before shading date.

Time pinching standards will eliminate the formation of the crown bud and produce terminal buds which will in turn produce a much straighter flowering stem.

All pinching should be finished by the early part of August as too late a pinching might encourage blindness and short stem length. We do feel that those people who grow their mums on ground beds should pinch about a week earlier than those on raised benches.

Pruning

Another important factor is to remove all shoots but 3 or 4 per plant, in a few instances only 2 shoots are allowed to mature. When fewer breaks are selected the planting distance should be closer. If you prefer to have a number of smaller sprays, with fewer blooms open at one time, follow the double pinching procedure.

Standards are usually pinched once to induce breaks so that they may be grown two per plant. The strongest breaks are selected and all others removed. It is well to pinch on the date suggested in the general list. Careful observation has shown us that neckiness with some varieties is eliminated by pinching on the respective dates. Singles and anemones are usually grown 3 to 4 stems per plant.

Condition of Plant

When pinching, remove only the soft growth, never cut into the woody stems as this will not produce the type of breaks you desire. It is our experience that it is best not to pinch until the plant has become well established in its permanent location. In all cases it is better to have at least eight to ten inches of growth on the plants before pinching. (Photos above.)

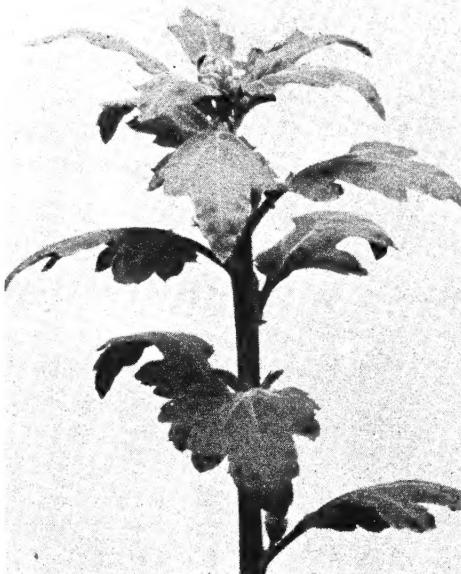
When double pinching, pinch the first time 30 days before the "Last Pinch". This allows enough time to produce a growth long enough to pinch at the proper time.

If by chance you are delayed in planting and your plants will be too tall, it is advisable to pinch early enough before benching so that the breaks will be several inches long at time of planting. Never pinch hard plants at the same time they are planted into the bench, a heavy loss may result. Better wait until plants are established, then pinch.

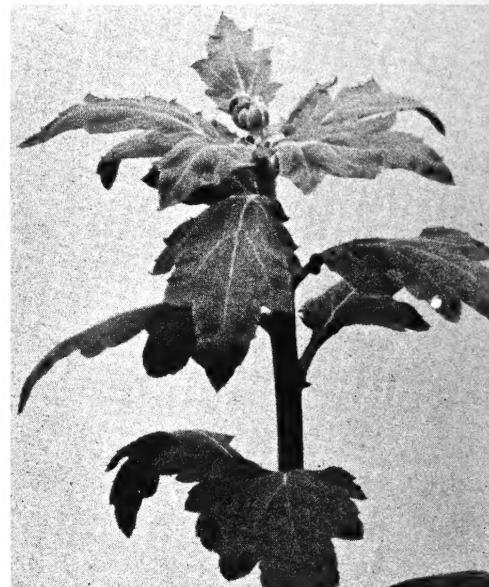
The last pinching dates given after each variety will help you grow that variety to excellency. Remember that pinching is just one cultural factor and will only function when all other cultural points are carried out properly.

Cultural Pointers

Early or Crown bud surrounded by lateral buds



Late or Terminal bud surrounded by flower buds



Late or Terminal bud selected

DISBUDDING

Large flowered varieties produce side shoots in the axils of the leaves which should be removed very close to the base at regular weekly intervals. Disbuds are handled the same as standards.

Taking Bud

The chrysanthemum usually produces two distinct types of flowering buds—Crown and Terminal. The first bud produced is called the crown bud and is distinguished by being surrounded by other lateral leaf buds. The second is the terminal bud and is surrounded by several flower buds. If the plant is planted especially early, a second crown bud might appear. In appearance this second crown bud is exactly the same as the first.

The procedure of "Taking Bud" depends very largely on the variety. Usually the safest rule to follow is not to select a bud on early or midseason varieties before August 25 and never select a crown bud on late flowering varieties. In our list of large flowered varieties under "Select Bud" you will find the date on which to select the proper bud. If bud is selected too early a large percentage of the flowers will be crippled.

The formation of the crown bud usually does not take place when growing according to the "Time Pinch Plan".

The final selection of bud should not be made when the cluster buds are too small as this will very likely cause injury to the stem near the bloom. Likewise it is not advisable to delay selecting the bud too long. Some growers like to leave an alternate bud until they are certain that nothing will happen to the one finally selected.

DISBUDDED SPRAYS

The procedure in growing disbudded sprays, is to wait until the crown bud forms, then remove all vegetative shoots but three. Later when terminal buds appear disbud each shoot similar to the normal disbudding of standards. When the blooms mature there are three flowers on each spray. In singles and anemones, the size of the blooms will be a trifle smaller than when they are grown as one flower per stem. Raise three stems per plant similar to straight disbuds. Varieties such as Goldsmith, Valencia, Europa, etc., can be grown as disbudded sprays.

Good Chrysanthemums result from the careful and thorough practice of the basic principles of plant growth, plus the acknowledgment of certain differences in the nature of various varieties. Growing disbudded sprays is a modification in culture which is very much worthwhile.

Cultural Pointers

WATERING

The knowledge of proper watering is essential to success. Chrysanthemums produce extremely heavy foliage and a great deal of water is required at the roots, and under ordinary conditions of bench culture overwatering would be difficult. When grown in beds more care should be exercised in watering. After benching young plants grown in 2 1/4" pots, spot watering around the plants is more desirable than watering the entire area. When the plants become established the entire area should be given a thorough watering. A trowel should be used to examine the soil to determine the necessity of watering. Some soils look wet on the surface but are very dry several inches below.

When planting rooted cuttings directly into their permanent locations it is essential to water thoroughly to set the soil around the plant roots. We suggest double watering again when the soil gets on the dry side. By this time the plants are established and regular watering should be followed. Keep humidity in the house by wetting down bench and walks.

Leaching

Many greenhouse soils are excessively rich and chrysanthemums will not thrive in such a medium. If this is the case, the remedy is leaching with water. After the soil is sterilized it should be leached. Use a skinner line and allow it to run for hours if necessary. Raised benches do not require as much water to leach.

Syringing

During the heat of the summer it is beneficial to syringe or spray the foliage of chrysanthemums. When syringing is started around 8:00 A.M. and continued at regular intervals, with the help of a light shade on the glass, the house temperature can be kept down and the humidity raised within the house. When the growth becomes thick or when the nights get chilly discontinue all syringing. Some growers who grow quality mums tell us that they do not syringe their crop during the entire season.

TEMPERATURE

This crop will make its most growth during cool weather. During the summer, syringing overhead plus a light shade on the glass will help keep the plants cool.



Blindness

Blindness may be a combination of late planting, late pinching, too much moisture, too rich a soil and too low a temperature at bud initiation. It has been shown that if chrysanthemums are grown in temperatures much below 50° at the time of bud initiation the plants will remain vegetative and will not form flower buds. Blindness is usually associated with those varieties which flower the latter part of November or later. Not all varieties initiate buds at the same date. The late flowering varieties may not set bud until October.

To overcome blind growth keep a night temperature of 55 - 60° from September 15 on until the buds are visible. Likewise run the soil moisture low and do not feed during this period. After the buds are visible it is safe to reduce the temperature to 50°.

When growing chrysanthemums "The Year Around" it is very important to maintain a temperature of 60° during the period of bud formation or blindness and poor budding will result.

Verticillium Wilt Showing Wilting of Lower Leaves

Chrysanthemums The Year Around

Chrysanthemums can be produced at any time of year, providing day length, temperature, insects and diseases are controlled correctly. Our research workers in various federal and state institutions have shown us that a crop of chrysanthemums can be harvested every four months.

The chrysanthemum has great variety of colors and types and also has excellent keeping quality. Both the retailer and consumer are interested in this and they will welcome the addition of chrysanthemums the year around.

Season has been eliminated and the flowering time can be accurately controlled. You can use varieties that are best for your market. Some varieties are excellent for the August to November bloom but are worthless during the winter and spring months because of the poor light intensity at that time.

Daylength Control

It has been known that the days are short enough for bud formation around September 1. This will vary somewhat depending upon your location in the States. To prevent flower buds from forming it is desirable to lengthen the day with additional light starting August 15. When one is using black cloth to reduce the length of the day the treatment can be discontinued September 1.

Similarly in the spring the days are too long for further bud formation starting April 15. To prevent bud formation light the plants until April 20. If you want bud formation start shading March 15, or a little earlier if you are in the extreme southern states.

Black Cloth

If you are using black cloth during the period from March 15 to July 25 be sure to have opaque cloth so that very little light passes through the cloth. Cloth that has been previously used very likely will not be dark enough, so make tests with a light meter before using. Heavy canvas dyed a dark color has proven to be satisfactory.

Amount of Additional Light

Cornell University recommends the use of 60 watt lamps with reflectors spaced at six foot intervals, three feet above the plants. Light should be applied from midnight to 12:30 a.m. from August 15 to September 1 and February 15 to April 15. During the period from September 1 to February 15 it is necessary to use four hours of additional illumination from midnight to 4:00 a.m.

Temperature Control

For bud formation a minimum temperature of 60 degrees should be maintained. During the period of elongation or where bud formation is not wanted a night temperature near 55 degrees is ideal but some investigators find that 50 degrees is satisfactory. When black cloth is started raise the night temperature to 60 degrees until color shows, and then it can be lowered.

Timing 15 - 30 - 60

Rooted cuttings previously grown under additional light should be planted directly into the permanent location and 15 days later should be pinched. A soft pinch should be made. Allow 30 days after pinching for the period of elongation before applying the short day treatment. 60 days of short day treatment are necessary before blooms are ready to cut. The following schedule should be followed to regulate your blooming period throughout the year.

Varieties

The selection of varieties is of extreme importance. The varieties to use for January, February and March flowering should be those that bloom naturally the end of November and the early part of December. Use only the more vigorous growing varieties such as Golden Jane, Apricot Valencia, Valencia, Sunnyside, Omega and Seafoam.

For blooming in April, May and June, workers at Ohio State found that varieties such as Sunray, Yellow Arcadia, White Mensa, Shasta, Pinocchio, Minong, Arcadia responding most favorably.

Chrysanthemums The Year Around

SCHEDULE FOR FLOWERING CHRYSANTHEMUMS THE YEAR AROUND

Planting Date	Pinching Date		Apply Additional Light		Apply Black Cloth		Blooming Period
January	January 15	Jan. 1	— Feb. 15	March 1 on		April 15 — 25	
February	February 15	Feb. 1	— Mar. 15	March 15 on		May 15 — 25	
March	March 15	Mar. 1	— April 15	April 15 on		June 15 — 25	
April	April 15	April 1	— 15	May 15 on		July 15 — 25	
May	May 15	None		June 15 on		August 15 — 25	
June	Natural Flowering Period						
July	Natural Flowering Period						
August	August 15	Aug. 15	— Sept. 15	None		November 15 — 25	
September	September 15	Sept. 1	— Oct. 15	None		December 15 — 25	
October	October 15	Oct. 1	— Nov. 15	None		January 15 — 25	
November	November 15	Nov. 1	— Dec. 15	None		February 15 — 25	
December	December 15	Dec. 1	— Jan. 15	None		March 15 — 25	

USEFUL HINTS

- 1—Regulate the daylength according to the schedule.
- 2—Maintain a minimum temperature of 60 degrees for bud initiation.
- 3—Plant rooted cuttings directly, which have been grown specifically for this type of culture.
- 4—Pinch the established cutting 15 days after benching.
- 5—Allow 30 long days for elongation period after pinching before applying short day treatment.
- 6—Select early flowering varieties for April, May and June flowering periods. Use naturally late flowering varieties for January, and February flowering.
- 7—Standards, Pot-Plants and Pompons respond alike to this flowering treatment.
- 8—Be careful that the light from the bench treated does not light a bench nearby that is not treated.
- 9—Use opaque cloth from March to July 25.
- 10—Follow proper cultural practices found elsewhere in this manual.



Cultural Pointers

CUTTING FLOWERS

Quality flowers can be easily ruined by improper cutting and marketing. Standards should have their centers well developed before cutting as half open blooms will not have good keeping qualities. Pompons are ready to cut when the majority of the buds on the spray are open. If pompons are allowed to remain on the plant too long the quality is greatly reduced. There is also a great difference in weight of pompons cut when ready as compared with those held on the plant for some time before cutting. The Chrysanthemum Society of America recommends that pompons be marketed in 9 ounce bunches. Pompons should be bunched in neat uniform bunches with the blooms on one plane and the stems all cut to one length. Tie the bunch lightly at the top and firmly at the base with string to prevent the flower heads from tangling with other bunches when handled.

There is a possibility of marketing pompons by the dozen stems provided a uniform spray can be grown by following the precision growing procedure.

SHIPPING FLOWERS

Packing of cut flowers should be carefully studied. The most common error is over-crowding in the shipping boxes. Not securely fastening the blooms in the box will cause bruising of the petals. Cleaning or sewing the stems to the box is essential. Cushion the blooms by placing enough padded paper on the bottom of the corrugated box and between the layers of blooms. Wrap the pompons with a loose wrapper. The wrapping paper could have the name of the grower printed on it. Long distance shipments carry better if the cut flowers are packed dry. Reduction of temperature is accomplished by precooling the packed cut flowers.

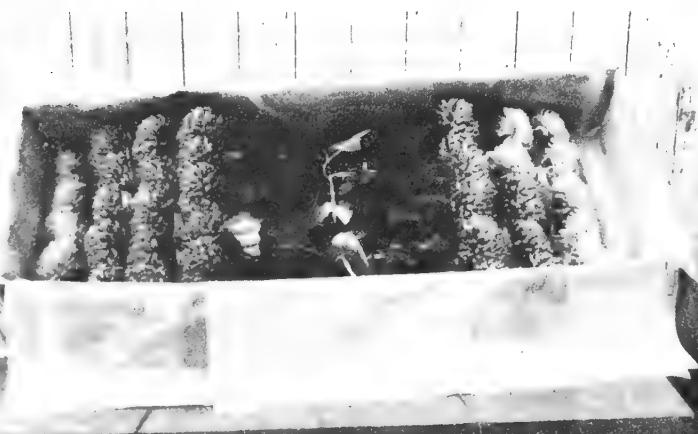
CULTURED STOCK

Through the development of science your chrysanthemum cuttings have all been grown from stock that has been cultured to determine the presence or absence of the fungus that causes Verticillium Wilt or more commonly referred to as Seidewitz Disease. The culturing of cuttings is to place bits of the stem of a cutting into the gelatine-like agar medium which is used for growing fungi. If the tissue is not infected, no growth of Verticillium develops. As each cutting is cultured it is placed in sterile propagating benches spaced six inches each way. After 10 days of incubating the agar plates one can determine if the wilt organism is present in the tissue. All the cuttings that show the presence of Verticillium are discarded and only those that show a negative reading are saved and grown into stock plants. This clean stock must be grown under sterile conditions at all times as cuttings can be easily contaminated when planted into soil that has the Verticillium organism present.

Verticillium wilt undoubtedly is the worst disease of the Chrysanthemum. If you obtain cuttings propagated from cultured stock and provided you grow your plants in clean soil this disease should not be of any trouble to you.

Well Packed Box of Good News and Detroit News

General View of Propagating Houses



Complete Cloth House Construction

Measure out a perfect rectangle on the ground, each side of the rectangle being 33 feet, or if larger, some multiple of 33 feet. Posts to be placed in the ground three feet deep, to carry the wires at positions that will line the wires in $16\frac{1}{2}$ foot centers, in every direction.

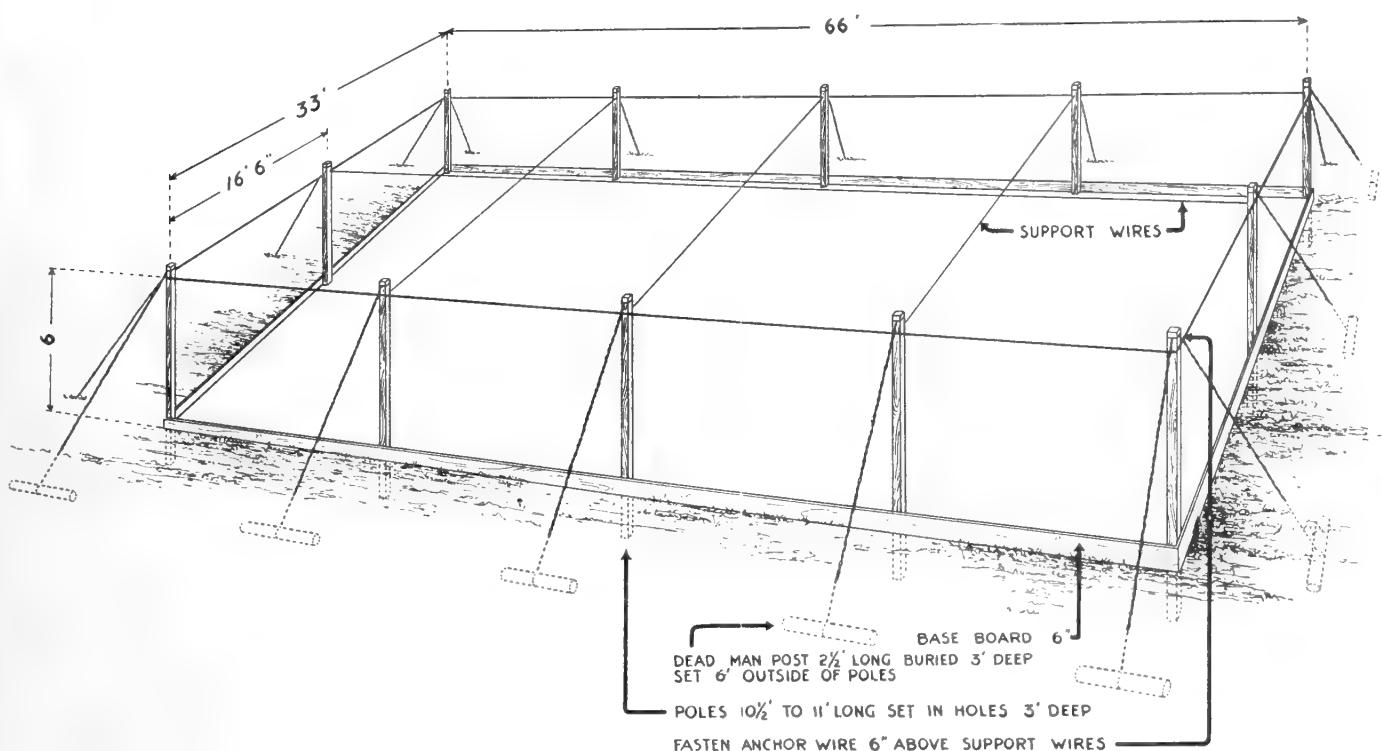
Each outside post must be anchored rigidly with a dead man, and each corner post must have two dead men. Nail the 6-inch baseboard in position around the outside of the house. Place two $1\frac{1}{2}$ inch staples six feet above the ground on each post so the No. 8 galvanized wires will pull through easily and use wire stretchers to stretch the wires taut.

To cover the top unroll the cloth at one end of the frame and with several men lift it across the support wires, unfold a few yards lengthwise beside the frame, then take the selvage edge of the house top and the selvage edge of the sidewall and roll them together five times around the side wire, where you have surplus cloth on the ends wrap this around the wires and sew it. Pin the cloth in place with 8 penny wire nails, pin 10 or 15 feet before you begin to sew, stretch the cloth only enough to keep the sagging out and be sure to keep the lengthwise reinforcement woven lines at an even distance parallel with the length of the wire.

Start at the post and sew by whipping around the wire using a tight lock stitch, so that the cloth will not slip. After this side is finished unfold the cloth to the other 33 feet side support wire and pin before sewing, making sure that the woven reinforced lines are at an even parallel distance from the support wire, sew ends with the same method. Only sew the cloth to support wires, fasten the sidewalls to the baseboard with the new aluminum fasteners every 9 inches.

A very good idea to prevent the cloth from chafing and wearing out the yarns is to cover the rough joints of the baseboard and also wrap the posts with either heavy paper or old cloth. Painting the cloth with **Cuprinol** at the baseboard and at the posts will prolong the life of the cloth.

The beds are laid out lengthwise in the house. The width of the beds may be made any width. It has been found that 5 beds 56 inches wide or 6 beds 44 inches wide are the easiest managed in a 33-foot house. It is best to put a 6-inch board around the border of each bed. The board will keep the water from running into the walks and makes for easier management of the house.



The Use of Black Cloth Shading to Advance the Flowering Season

The commercial use of applying black cloth to advance the flowering season has been used successfully for the past sixteen years. The biggest change has not been in the application of the cloth but has come about with varieties and their culture. The varieties in the following list lend themselves to black cloth shading. The dates opposite the varieties are those found satisfactory when the given blooming date is desired.

USEFUL HINTS

- 1—Use a good durable **Black Cloth** which when applied will reduce the light intensity to 2 foot candles or less. More light intensity than this will result in delayed flowering and unevenness of bloom.
- 2—Short day treatment matures the plants earlier, therefore it is necessary to have the pompons 12 to 15 inches high and the standards 18 to 24 inches high when the shading treatment is started. When plants are short at the start of the shading period you will have short cut flowers when ready to cut.
- 3—The cloth should be applied at 5 P.M. and removed at 8 A.M. Continue covering each evening on pompons until the latest buds show color and most of the flowers are well developed. For large flowering varieties shading can be discontinued after all flowering buds have attained the diameter of approximately one half inch.
- 4—Be sure that covering is complete on all benches shaded, as any leaks in light will cause uneven spots in the bench at blooming time.
- 5—When shading out of doors or under aster cloth, it has been found that metal clamps similar to those used in battery shops will hold on the black cloth better than clothes pins or safety pins.
- 6—When growing large flowering varieties outdoors give some protection as rain and wind storms play havoc when not protected.
- 7—Best results are obtained when varieties of approximately the same blooming date are used for any one particular shading. When a spread in blooming dates is desired, repeated shading of a few varieties at weekly or ten-day intervals has proven more satisfactory than grouping a large number of varieties into any one shading. The shading dates given are those which have been found to be best for the respective varieties. We recommend benching six weeks prior to shading.
- 8—Continue to give the plants which are being given the short day treatment the same care as those grown normally. We have collected the data on the ideal time to bench and pinch for the respective dates of bloom when shading is started at various dates. This is found in the tables on the following pages.
- 9—Select the first bud on standard varieties that appears after shading is started.
- 10—Black cloth should be applied each evening although missing one night a week will give fair results but delayed flowering results when cloth is not applied each evening.

As an added suggestion, we would recommend the removal of black cloth after night fall to allow for a better circulation of air. This would prevent the accumulation of dampness and the unfavorable results that usually occur therefrom. This of course will cause considerable extra work as the cloth must be replaced before morning. We feel however, that as this will improve the growth and the foliage it will be well worth the effort. Perfection is never obtained without added effort.

Large Flowering Varieties

Blooming Period	Recommended Varieties	Color	Shading Date	Blooming Period	Recommended Varieties	Color	Shading Date
AUGUST 18 — 23							
	BLAZING GOLD	Y.	June 19		GOOD NEWS	Y.	July 21
	SILVER SHEEN	W.	June 19		IND. YELLOW	Y.	July 17
	OCTOBER ROSE	P.	June 22		YELLOW MEFO	Y.	July 9
	HILDA BERGEN	B.	June 19		BETSY ROSS	W.	July 21
AUGUST 26 — 30							
	BLAZING GOLD	Y.	June 26		IND. WHITE	W.	July 17
	GOOD NEWS	Y.	June 23		MONUMENT	W.	July 13
	SILVER SHEEN	W.	June 26		MEFO	W.	July 9
	BETSY ROSS	W.	June 23		OCTOBER ROSE	P.	Aug. 4
	OCTOBER ROSE	P.	June 29		IND. PINK	P.	July 17
	HILDA BERGEN	B.	June 26		ORCHID QUEEN	Dk. P.	July 17
	DETROIT NEWS	B.	June 23		DETROIT NEWS	B.	July 21
SEPTEMBER 1 — 6							
	BLAZING GOLD	Y.	July 3		IND. BRONZE	B.	July 17
	GOOD NEWS	Y.	June 30		ANACONDA	B.	July 13
	IND. YELLOW	Y.	June 26		SEPTEMBER 29 — OCTOBER 4		
	SILVER SHEEN	W.	July 3		GOOD NEWS	Y.	July 28
	BETSY ROSS	W.	June 30		IND. YELLOW	Y.	July 24
	IND. WHITE	W.	July 26		YELLOW MEFO	Y.	July 16
	OCTOBER ROSE	P.	July 14		BETSY ROSS	W.	July 28
	IND. PINK	P.	June 26		IND. WHITE	W.	July 24
	HILDA BERGEN	B.	July 3		MONUMENT	W.	July 20
	DETROIT NEWS	B.	June 30		MEFO	W.	July 16
	IND. BRONZE	B.	July 26		OCTOBER ROSE	P.	Aug. 11
SEPTEMBER 8 — 13							
	BLAZING GOLD	Y.	July 10		IND. PINK	P.	July 24
	GOOD NEWS	Y.	July 7		ORCHID QUEEN	Dk. P.	July 24
	IND. YELLOW	Y.	July 3		DETROIT NEWS	B.	July 28
	SILVER SHEEN	W.	July 10		IND. BRONZE	B.	July 24
	BETSY ROSS	W.	July 7		ANACONDA	B.	July 20
	IND. WHITE	W.	July 3		OCTOBER 6 — 11		
	MONUMENT	W.	June 29		GOOD NEWS	Y.	Aug. 4
	OCTOBER ROSE	P.	July 21		IND. YELLOW	Y.	July 31
	IND. PINK	P.	July 3		YELLOW MEFO	Y.	July 23
	HILDA BERGEN	B.	July 10		BETSY ROSS	W.	Aug. 4
	DETROIT NEWS	B.	July 7		IND. WHITE	W.	July 31
	IND. BRONZE	B.	July 3		MONUMENT	W.	July 27
SEPTEMBER 15 — 20							
	BLAZING GOLD	Y.	July 17		MEFO	W.	July 30
	GOOD NEWS	Y.	July 14		IND. PINK	P.	July 31
	IND. YELLOW	Y.	July 10		ORCHID QUEEN	Dk. P.	July 31
	YELLOW MEFO	Y.	July 2		DETROIT NEWS	B.	Aug. 4
	SILVER SHEEN	W.	July 17		IND. BRONZE	B.	July 31
	BETSY ROSS	W.	July 14		ANACONDA	B.	July 31
	IND. WHITE	W.	July 10		OCTOBER 13 — 18		
	MONUMENT	W.	July 6		GOOD NEWS	Y.	Aug. 11
	MEFO	W.	July 2		IND. YELLOW	Y.	Aug. 7
	OCTOBER ROSE	P.	July 28		YELLOW MEFO	Y.	July 30
	IND. PINK	P.	July 10		BETSY ROSS	W.	Aug. 11
	ORCHID QUEEN	Dk. P.	July 10		IND. WHITE	W.	Aug. 7
	HILDA BERGEN	B.	July 17		MONUMENT	W.	Aug. 3
	DETROIT NEWS	B.	July 14		MEFO	W.	Aug. 6
	IND. BRONZE	B.	July 10		IND. PINK	P.	Aug. 7

PLANT 7 WEEKS BEFORE SHADING DATE. LAST PINCH 35 DAYS BEFORE SHADING DATE.

Pompons, Decorative, Single and Anemone Types

Blooming Period	Recommended Varieties	Color	Shading Date	Blooming Period	Recommended Varieties	Color	Shading Date
AUGUST 4—9							
	YELLOW IRENE	Y.	June 8		GOLD COAST	Y.	July 3
	GOLD COAST	Y.	June 5		YELLOW DOT	Y.	July 3
	IRENE	W.	June 8		YELLOW DAISY	Y.	June 30
	PINOCCHIO	W.	June 5		YELLOW ARCADIA	Y.	June 30
	DARK PINK JEWELL	P.	June 8		BARCAROLE	Y.	June 26
	CAROLINE YOSICK	P.	June 5		NUGGETS	Y.	June 26
AUGUST 11—16							
	YELLOW IRENE	Y.	June 15		YELLOW BUSHNELL	Y.	June 26
	GOLD COAST	Y.	June 12		PIXIE	Y.	June 26
	IRENE	W.	June 15		IRENE	W.	July 6
	PINOCCHIO	W.	June 12		PINOCCHIO	W.	July 3
	PINK PEARL	P.	June 15		MINONG	W.	July 3
	JEWELL	P.	June 15		ARCADIA	W.	June 30
	DARK PINK JEWELL	P.	June 15		SEA GULL	W.	June 26
	CAROLINE YOSICK	P.	June 12		REV. BUSHNELL	W.	June 26
AUGUST 18—23							
	YELLOW IRENE	Y.	June 22		LAKME	W.	June 26
	GOLD COAST	Y.	June 19		FIREBIRD	B.	July 3
	YELLOW DOT	Y.	June 19		ADELAIDE	B.	July 3
	IRENE	W.	June 22		ROMAN BRONZE	B.	July 3
	PINOCCHIO	W.	June 19		RED DAISY	B.	June 30
	MINONG	W.	June 19		NAVAHO	B.	June 26
	FIREBIRD	B.	June 19		CASSANDRA	B.	June 26
	ADELAIDE	B.	June 19		ROBIN HOOD	B.	June 26
	ROMAN BRONZE	B.	June 19		PINK PEARL	P.	July 6
	PINK PEARL	P.	June 22		JEWELL	P.	July 6
	JEWELL	P.	June 22		CAPTAIN COOK	P.	July 3
	CAPTAIN COOK	P.	June 19		PINK DOT	P.	July 3
	PINK DOT	P.	June 19		JESSIE	P.	July 3
	JESSIE	P.	June 19		CAROLINE YOSICK	P.	July 3
	CAROLINE YOSICK	P.	June 19		OCTOBER PINK	P.	June 30
AUGUST 25—30							
	YELLOW IRENE	Y.	June 29		DARK PINK BULKELEY	P.	June 26
	GOLD COAST	Y.	June 26		SEPTEMBER 1—6		
	YELLOW DOT	Y.	June 26		GOLD COAST	Y.	July 10
	YELLOW DAISY	Y.	June 23		YELLOW DOT	Y.	July 10
	YELLOW ARCADIA	Y.	June 23		YELLOW DAISY	Y.	July 7
	IRENE	W.	June 29		YELLOW ARCADIA	Y.	July 7
	PINOCCHIO	W.	June 26		BARCAROLE	Y.	July 3
	MINONG	W.	June 26		NUGGETS	Y.	July 3
	ARCADIA	W.	June 23		YELLOW BUSHNELL	Y.	July 3
	FIREBIRD	B.	June 26		PIXIE	Y.	July 3
	ADELAIDE	B.	June 26		YELLOW FELLOW	Y.	June 29
	ROMAN BRONZE	B.	June 26		IRENE	W.	July 13
	RED DAISY	B.	June 23		PINOCCHIO	W.	July 10
	PINK PEARL	P.	June 29		MINONG	W.	July 10
	JEWELL	P.	June 29		ARCADIA	W.	July 7
	CAPTAIN COOK	P.	June 26		SEA GULL	W.	July 3
	PINK DOT	P.	June 26		REV. BUSHNELL	W.	July 3
	JESSIE	P.	June 26		LAKME	W.	June 29
	CAROLINE YOSICK	P.	June 26		FIREBIRD	B.	July 10
	OCT. PINK	P.	June 23		ADELAIDE	B.	July 10
					ROMAN BRONZE	B.	July 10
					RED DAISY	B.	July 7
					NAVAHO	B.	July 3

PLANT 7 WEEKS BEFORE SHADING DATE. LAST PINCH 35 DAYS BEFORE SHADING DATE.

Pompons, Decorative, Single and Anemone Types

Blooming Period	Recommended Varieties	Color	Shading Date	Blooming Period	Recommended Varieties	Color	Shading Date
SEPTEMBER 8 — 13							
	CASSANDRA	B.	July 3		BARCAROLE	Y.	July 17
	ROBIN HOOD	B.	July 3		NUGGETS	Y.	July 17
	BR. BULKELEY	B.	July 3		YELLOW BUSHNELL	Y.	July 17
	SYLVANNA	B.	June 29		PIXIE	Y.	July 17
	PINK PEARL	P.	July 13		YELLOW FELLOW	Y.	July 13
	JEWELL	P.	July 13		PRINCETON	Y.	July 9
	CAPTAIN COOK	P.	July 10		PINOCCHIO	W.	July 24
	PINK DOT	P.	July 10		ARCADIA	W.	July 21
	JESSIE	P.	July 10		SEA GULL	W.	July 17
	CAROLINE YOSICK	P.	July 10		REV. BUSHNELL	W.	July 17
	OCTOBER PINK	P.	July 7		VESPER	W.	July 13
	MRS. BULKELEY	P.	July 3		LAKME	W.	July 13
	DARK PINK BULKELEY	P.	July 3		LITTLE AMERICA	W.	July 13
					MATCHLESS	W.	July 9
SEPTEMBER 15 — 20							
	GOLD COAST	Y.	July 17		SEA FOAM	W.	July 5
	YELLOW DOT	Y.	July 17		RED DAISY	B.	July 21
	YELLOW DAISY	Y.	July 14		OCTOBER BRONZE	B.	July 21
	YELLOW ARCADIA	Y.	July 14		NAVAHO	B.	July 17
	BARCAROLE	Y.	July 10		CASSANDRA	B.	July 17
	NUGGETS	Y.	July 10		ROBIN HOOD	B.	July 17
	YELLOW BUSHNELL	Y.	July 10		BR. BULKELEY	B.	July 17
	PIXIE	Y.	July 10		BR. MASTERPIECE	B.	July 13
	YELLOW FELLOW	Y.	July 6		SYLVANNA	B.	July 13
	PRINCETON	Y.	July 2		RED PRINCETON	B.	July 9
	PINOCCHIO	W.	July 17		BR. GOLDSMITH	B.	July 5
	MINONG	W.	July 17		CAPTAIN COOK	P.	July 24
	ARCADIA	W.	July 14		PINK DOT	P.	July 24
	SEA GULL	W.	July 10		JESSIE	P.	July 24
	REV. BUSHNELL	W.	July 10		CAROLINE YOSICK	P.	July 24
	LAKME	W.	July 6		OCT. PINK	P.	July 21
	MATCHLESS	W.	July 2		MRS. BULKELEY	P.	July 17
	FIREBIRD	B.	July 17		DARK PINK BULKELEY	P.	July 17
	ROMAN BRONZE	B.	July 17		MASTERPIECE	P.	July 13
	RED DAISY	B.	July 14		BROCADE	P.	July 13
	OCT. BRONZE	B.	July 14				
SEPTEMBER 22 — 27							
	GOLD COAST	Y.	July 24		GOLD COAST	Y.	July 31
	YELLOW DOT	Y.	July 24		BARCAROLE	Y.	July 24
	YELLOW DAISY	Y.	July 21		NUGGETS	Y.	July 24
	YELLOW ARCADIA	Y.	July 21		YELLOW BUSHNELL	Y.	July 24
SEPTEMBER 29 — OCTOBER 4							
					PIXIE	Y.	July 24
					YELLOW FELLOW	Y.	July 20
					PRINCETON	Y.	July 16
					GOLDSMITH	Y.	July 12
					PINOCCHIO	W.	July 31
					ARCADIA	W.	July 28
					SEA GULL	W.	July 24
					REV. BUSHNELL	W.	July 24
					VESPER	W.	July 20
					LAKME	W.	July 20
					LITTLE AMERICA	W.	July 20
					MATCHLESS	W.	July 16
					SEA FOAM	W.	July 12

PLANT 7 WEEKS BEFORE SHADING DATE. LAST PINCH 35 DAYS BEFORE SHADING DATE.

Pompons, Decorative, Single and Anemone Types

Blooming Period	Recommended Varieties	Color	Shading Date	Blooming Period	Recommended Varieties	Color	Shading Date				
SEPTEMBER 29 — OCTOBER 4											
	RED DAISY	B.	July 28		BR. GOLDSMITH	B.	July 19				
	OCT. BRONZE	B.	July 28		PINK DOT	P.	Aug. 7				
	NAVAHO	B.	July 24		JESSIE	P.	Aug. 7				
	CASSANDRA	B.	July 24		CAROLINE YOSICK	P.	Aug. 7				
	ROBIN HOOD	B.	July 24		OCT. PINK	P.	Aug. 4				
	BR. BULKELEY	B.	July 24		MRS. BULKELEY	P.	July 31				
	BR. MASTERPIECE	B.	July 20		DK. PK. BULKELEY	P.	July 31				
	SYLVANNA	B.	July 20		MASTERPIECE	P.	July 27				
	RED PRINCETON	B.	July 16		BROCADE	P.	July 27				
	BITTERSWEET	B.	July 16		UNEEDA	P.	July 19				
	BR. GOLDSMITH	B.	July 12								
	PINK DOT	P.	July 31	OCTOBER 6 — 11							
	JESSIE	P.	July 31		GOLD COAST	Y.	Aug. 14				
	CAROLINE YOSICK	P.	July 31		BARCAROLE	Y.	Aug. 7				
	OCT. PINK	P.	July 28		NUGGETS	Y.	Aug. 7				
	MRS. BULKELEY	P.	July 24		YELLOW BUSHNELL	Y.	Aug. 7				
	DR. PK. BULKELEY	P.	July 24		PIXIE	Y.	Aug. 7				
	MASTERPIECE	P.	July 20		YELLOW FELLOW	Y.	July 31				
	BROCADE	P.	July 20		PRINCETON	Y.	July 30				
	UNEEDA	P.	July 12		GOLDSMITH	Y.	July 26				
OCTOBER 6 — 11											
	GOLD COAST	Y.	Aug. 7		PINOCCHIO	W.	Aug. 14				
	BARCAROLE	Y.	July 31		ARCADIA	W.	Aug. 11				
	NUGGETS	Y.	July 31		SEA GULL	W.	Aug. 7				
	YELLOW BUSHNELL	Y.	July 31		REV. BUSHNELL	W.	Aug. 7				
	PIXIE	Y.	July 31		VESPER	W.	Aug. 3				
	YELLOW FELLOW	Y.	July 27		LAKME	W.	Aug. 3				
	PRINCETON	Y.	July 23		LITTLE AMERICA	W.	Aug. 3				
	GOLDSMITH	Y.	July 19		MATCHLESS	W.	July 30				
	PINOCCHIO	W.	Aug. 7		SEA FOAM	W.	July 26				
	ARCADIA	W.	Aug. 4		NAVAHO	B.	Aug. 7				
	SEA GULL	W.	July 31		CASSANDRA	B.	Aug. 7				
	REV. BUSHNELL	W.	July 31		ROBIN HOOD	B.	Aug. 7				
	VESPER	W.	July 27		BR. BULKELEY	B.	Aug. 7				
	LAKME	W.	July 27		BR. MASTERPIECE	B.	Aug. 3				
	LITTLE AMERICA	W.	July 27		SYLVANNA	B.	Aug. 3				
	MATCHLESS	W.	July 23		RED PRINCETON	B.	July 31				
	SEA FOAM	W.	July 19		BITTERSWEET	B.	July 31				
	NAVAHO	B.	July 31		BR. GOLDSMITH	B.	July 26				
	CASSANDRA	B.	July 31		PINK DOT	P.	Aug. 14				
	ROBIN HOOD	B.	July 31		JESSIE	P.	Aug. 14				
	BR. BULKELEY	B.	July 31		CAROLINE YOSICK	P.	Aug. 14				
	BR. MASTERPIECE	B.	July 27		OCT. PINK	P.	Aug. 11				
	SYLVANNA	B.	July 27		MRS. BULKELEY	P.	Aug. 7				
	RED PRINCETON	B.	July 23		DR. PK. BULKELEY	P.	Aug. 7				
	BITTERSWEET	B.	July 23		MASTERPIECE	P.	Aug. 3				
					BROCADE	P.	Aug. 3				
					UNEEDA	P.	July 26				

PLANT 7 WEEKS BEFORE SHADING DATE. LAST PINCH 35 DAYS BEFORE SHADING DATE.

Chrysanthemum Pot Plant Culture

Well grown short pot plants of Chrysanthemums have been finding a ready market in various sections of the country. We feel that many growers have been neglecting this valuable Fall potted plant. In many cases, poor attempts have been made in growing this plant and we offer the following suggestions for your consideration:

VARIETIES—The varieties best suited to pot culture are those which lateral freely and have a medium to low growing habit. A variety whose laterals tend to spread is superior to one with a more upright growth. Good examples are: Bonnaffon De Luxe and Queen of Pinks.

PLANTING—Cuttings may be planted into 2½" pots in May and later shifted into the larger pot for finishing. If this is done care must be used so as not to get the plants hardened too much before shifting. A more efficient and easier way is to set the large pots on the bench, fill them with potting soil and plant the cuttings directly into the finishing pots.

Three Cuttings should be planted in a six inch pot. While four may be required for a large pot.

WATERING AND HUMIDITY—After planting water thoroughly to set the soil around the plant roots. Repeat this type of watering when the soil gets on the dry side. Organic matter in the soil will facilitate watering and will tend to avoid extreme fluctuations in moisture supply. Keep humidity in house by wetting down bench and walks.

PINCHING—Three pinches are sufficient for a good short compact pot plant. The first pinch should be approximately 15 days after planting. The second pinch about 30 days after planting and the third and last pinch as listed on the chart. Some of the varieties listed grow taller than others, however by observing the last pinching date all the varieties listed should finish reasonably uniform in height. A hard pinch is suggested when the last pinch is delayed until after shading. For example: Yellow Beauty when shaded July 1st and pinched July 11th.

FERTILIZING—The best program is to have regular soil tests and feed as need is indicated by these tests. In absence of these facilities, and starting with a relatively fertile potting soil, several light feedings should be made with a complete fertilizer such as Electra. This can safely be used at the rate of 1 Teaspoonful per 6" pot. This should be applied when soil is moist and never on a dry soil.

The foliage should retain a bright green lustre throughout the life of the plant, and the lower leaves should never be allowed to lose their color and turn to a light green due to low fertility. A strong well grown pot plant is a well fed plant.

DISEASES AND INSECTS—Pot plants should be sprayed regularly with one of the rotenone insecticides for control of red spider. Pyrethrum sprays or tartar emetic will control thrip and leaf tyer. If plants are to be grown outdoors before final potting the foliage should be kept covered with a spray such as Bordeaux Mixture or Fermate to prevent leaf spot. If this is not done considerable foliage loss may result during wet cool weather.

SHADING—Same procedure as for cut flowers. Black cloth should be new or in best of condition for very early shadings to avoid delayed and uneven blooming. When possible take cloth off at night, replacing before daylight.

DISBUDDING POMPONS—Remove center bud except on the button types. This gives better spacing to the remaining flowers. Also the center bud generally matures earlier than the surrounding buds, giving the appearance of irregular blooming and premature aging. Remove this bud as early as convenient.

DISBUDDING STANDARDS—Disbudding must be done early, late disbudding results in small flowers and weak and elongated stems directly below the flowers.

HEIGHT—By following our directions pompons grown in 5½" or 6" pots will be 11" to 13" high. Disbuds will grow 14" to 17" above the top of the pot.

Pot Plant Culture Continuous Blooming Schedule

YELLOW

Planting Date	Shading Date	Blooming Date
GOLD LODE		
May 15	July 1	August 28
June 1	July 15	September 11
June 15	August 1	September 28
July 1	None	October 10
BLAZING GOLD		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
GOLDEN GLORY		
May 15	July 1	September 3
June 1	July 15	September 17
June 15	August 1	October 3
July 1	None	November 1
CARDONIA		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
YELLOW BEAUTY		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
BONNAFFON DE LUXE		
May 15	July 1	September 15
June 1	July 15	September 29
June 15	August 1	October 15
July 1	None	November 20
SUN GOLD		
May 15	July 1	September 19
June 1	July 15	October 3
June 15	August 1	October 20
July 1	None	November 25
WHITE		
CHRISTINA		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 20
RICHARD MANDEL		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
LITTLE AMERICAN		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
MARKETEER		
May 15	July 1	September 14
June 1	July 15	September 28
June 15	August 1	October 14
July 1	None	November 18

BRONZE

Planting Date	Shading Date	Blooming Date
HILDA BERGEN		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
ALAMEDA		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
GLITTERS		
May 15	July 1	September 1
June 1	July 15	September 16
June 15	August 1	October 2
July 1	None	October 28
APRICOT QUEEN		
May 15	July 1	September 3
June 1	July 15	September 17
June 15	August 1	October 3
July 1	None	November 1
GYPSY		
May 15	July 1	September 11
June 1	July 15	September 25
June 15	August 1	October 12
July 1	None	November 15
BRONZE FRICK		
May 15	July 1	September 19
June 1	July 15	October 3
June 15	August 1	October 20
July 1	None	November 25

PINK

EARLY OCTOBER		
May 15	July 1	August 28
June 1	July 15	September 11
June 15	August 1	September 28
July 1	None	October 10

PINK IZOLA		
May 15	July 1	September 3
June 1	July 15	September 17
June 15	August 1	October 3
July 1	None	November 1

THYRA		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10

QUEEN OF PINKS		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10

HELEN FRICK		
May 15	July 1	September 19
June 1	July 15	October 3
June 15	August 1	October 20
July 1	None	November 25

DATE OF LAST PINCH IS THE SAME AS SHADING DATE.

FOR POT PLANT CULTURE SEE PAGE 17

Insects and Their Control

APHIDS, OR PLANT LICE

All aphids are true sucking insects that insert their beaks through the surface of the leaf or stem and extract the juices from within.

INJURY. The feeding of aphids causes the plants to become sickly and stunted. The leaves curl inward, and when the flower terminal is infested the blooms will be deformed. Certain varieties of chrysanthemums are more susceptible to attack than others.

CONTROL. **Nicofume Fumigation** is the preferred method of control when a considerable number of plants in a house are found to be harboring aphids. **Nicofume Liquid** at the rate of 1-400 plus a soap spreader is also very effective. **Nicotine** dust is very effective against all species of aphids. **NNOR**, and **Loro** are also effective. They should be used as directed on the containers.

CHRYSANTHEMUM LEAF MINER

The larva or maggot disfigures and weakens chrysanthemum plants by mining in the leaves. It may do considerable harm to the crop, but is easily held in check.

INJURY. The young maggots burrow in the leaf tissue, leaving the upper and lower surfaces intact. The tunnels are irregular and winding. White blotches are thus formed, which later turn brown, and the leaves may die.

CONTROL. As soon as it is noticed that any leaves are infested, they should be picked off and burned. **Nicofume** spray will kill most of the maggots before they have time to do much damage.

CHRYSANTHEMUM MIDGE

The chrysanthemum midge is one of the most serious pests with which the grower has to deal. Under optimum conditions a little over a month is required to complete the life cycle from the egg to the adult. The eggs are reddish-orange in color and are usually deposited on the tender tips of the growth. Under favorable conditions, the eggs hatch in about three days. The larva wanders about over the surface of the leaf for a day or two before finally penetrating into the leaf.

INJURY. The midge attacks all parts of the plant but prefers the tender growth. If the infestation takes place when the plants are small, they fail to grow, although if the plants are well developed when the infestation starts, the buds blight or are deformed and the plant is rendered unsalable.

CONTROL. Clean stock should be used wherever possible. Severely infested plants should be pulled up and burned. Nightly fumigation with **Calcium cyanide** or **Nicofume** pressure fumigators for 28 consecutive days will give good control. **Loro** 1-800 plus **DuPont Spreader Sticker** 1-1200 sprayed every three days for 3 weeks then every week has proven to be one of the best controls. **Nicotine Dust** is also useful in keeping the plants covered and is especially useful when used in combination with fumigation. **Sodium selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established.



Aphids



Leaf Miner Injury

Insects and Their Control

C O R N E A R W O R M

The corn ear worm is a green to brown, nearly smooth caterpillar, often mistaken for a cutworm when found within the buds or on the open flowers.

INJURY. It is very destructive to the opening buds, for it feeds on their petals and other parts, deforming if not entirely ruining the flowers.

CONTROL. If the attacked plants are blooming, spraying is out of the question, but thorough treatment with a 3 or 5% D.D.T. dust is recommended. After they have worked their way into the buds and are found to be feeding on the open flowers, hand-picking is the only remedy. Spraying the plants with **Deenate 50W** will control them before the color shows.

C U T W O R M S

The larva is dull-colored and from one to more than two inches in length. They are most active at night, and usually spend the day coiled up just under the surface of the soil at the base of the plant. They should not be confused with the corn ear worm which cannot be controlled by poison baits.

INJURY. Cutworms obtain their food by biting out sections of the leaf, stem or bud. Various species attack different parts of the plant. The one that is most damaging climbs to the top of the stem and eats into the flower buds.

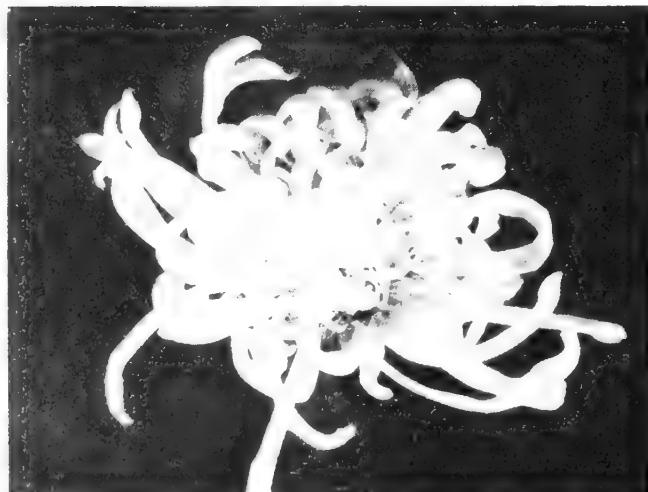
CONTROL. Those cutworms that feed on the foliage can best be controlled with **Deenate 50W** spray using 1½ pounds to 100 gallons of water. Cutworms are also controlled with a **poison bran bait** which should be distributed very thinly over the bench several consecutive nights. Poison bait formula consists of 5 pounds of wheat bran, enough water to moisten mash, 4 ounces of Paris Green, 1 pint of molasses and one finely chopped lemon.

G R E E N H O U S E L E A F T Y E R

It gets its name from its habit of spinning light webs inclosing two or more leaves or tying together the parts of a single leaf. This caterpillar is very active, and when disturbed will wriggle off the leaf, often backwards, lowering itself on a silk-like strand.

INJURY. When first hatched, the larvae eat out shallow holes on the under side of the leaves. As they grow, they enlarge these holes but usually do not cut through to the upper surface. The result is that the leaves become skeletonized.

CONTROL. The best poison to control the larvae is **Deenate 50W**, either in the form of a dust or a spray. For liquid spray use 1½ pounds of **Deenate 50W** to 100 gallons of water. Leaf tyers can also be controlled with **tartar emetic**. Add two pounds of tartar emetic, 4 pounds of sugar to 100 gallons of water. Spray the plants thoroughly so that the entire plant is covered. Pyrethrum sprays such as **Evergreen**, **Red Arrow Special**, **New Libersol**, and **Yamtox** will kill the worms and not discolor the foliage.



Corn Ear Worm Damage



Leaf Tyer

Insects and Their Control

MEALY BUGS

Mealybugs are small, sluggish, whitish, soft bodied insects, measuring up to $\frac{1}{4}$ inch long, found in clusters on the undersides of the leaves or in the leaf axils.

INJURY. This pest sucks the juices from the stems and leaves, discoloring and deforming the foliage.

CONTROL. Regular fumigations with **calcium cyanide** will aid in keeping mealybugs in check. The combination of **Greenhouse Volck** 1-50 and **Nicotofume** liquid 1-400 when applied when temperatures are below 90 degrees will give good results. **Loro** 1-800 and **DuPont Spreader Sticker** 1-1200 if sprayed when temperatures are not too high is very effective. The old method of syringing with water is still one of the easiest ways to keep the plants free of this insect.

MITES

Cyclamen mite and broad mite are often found on the same plants at the same time. Broad mite could pass through a complete generation in 4 to 5 days at 70 to 80 degrees while the Cyclamen mite will take 4 to 5 times longer.

INJURY. Infested leaves become deformed, curl from the outside inward, and wrinkle so that pockets and pit-like depressions are formed. When the infestation is severe, the mites collect about the buds, causing them to blight.

CONTROL. **Thiocide** 1-200 and **DuPont Spreader Sticker** 1-800 is the most effective control measure. We recommend spraying every week or ten days during the growing season. **Nicotine liquid** 1-400 plus spreader, **NNOR** may also be used and will give fair control. **Sodium Selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established.

RED SPIDERS

There are several species of red spiders that attack the chrysanthemum. They vary in color through yellow, orange and red. The body is oval in outline and bears eight well-developed legs.

INJURY. Red spiders pierce the epidermis of the leaf and draw the liquid contents from the cells, causing the leaf to turn pale around the injured portion. They prefer to collect on the under surfaces of the leaves, which they cover with silken threads.

CONTROL. Spray thoroughly and heavily with **Yamtox** or some rotenone sprays as **NNOR**, **L333**, **OPTOX** at intervals of five days until the spider is cleaned up. Moisture is detrimental to the development of the red spiders and frequent syringing washes them and their eggs off the plants. **Loro** 1-800 plus **DuPont Spreader Sticker** 1-1200 has given good control but should be applied with caution as it will injure foliage when temperatures are high. **Sodium selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established.

SYMPHYLIDS

Syphylids are small white creatures about $\frac{1}{8}$ to $\frac{3}{16}$ inches long. About 40 - 60 days are necessary for the completion of the life cycle.

INJURY. Syphylids destroy the fine root hairs and small rootlets, thus stunting the plants and often killing them outright.

CONTROL. If possible construct raised bench. Steam sterilization has given fair control. **Dowfume G** and the new **666** are giving excellent control of this pest.



Mealy Bugs



Syphylids Enlarged 10x

Insects and Their Control

SOW BUGS

INJURY. Sowbugs often become so plentiful in the greenhouse that they eat the newly planted cuttings at the base.

CONTROL. Any of the many poison baits will give partial control but a complete spraying under the benches has given excellent control. **Arbortox No. 7** or **Deenate 50W** will give complete control.

TARNISHED PLANT BUGS

The tarnished plant bug or sting fly comes into the greenhouse through open doors and ventilators in late summer or early fall and does considerable harm to this crop. Chrysanthemums growing in the open are frequently affected. Varieties such as Mary L. Hall and Sea Gull are attacked to a greater extent than other varieties.

INJURY. It has sucking mouthparts and obtains its food by inserting its long, slender beak into the plant tissues and sucking up the contents of the injured cells, apparently injecting saliva, which causes the death of the tissue in the immediate vicinity. The stem is often slightly bent and the terminal growth is malformed because of this injection.

CONTROL. Early morning spraying or dusting with any of the pyrethrum materials will kill those bugs that are present but this will have to be done each day for complete eradication. **Deenate 50W** has been giving fair control but again this insecticide is best used as a contact.

THrips

The chrysanthemum is usually attacked by one or more species of thrips. These small, narrow-bodied, active insects which range in color from yellow to brown or almost black, injure both the leaves and the blossoms.

INJURY. Thrips have mouth parts that are fitted for piercing and scraping the leaf surface and for sucking the juices and other cell contents. The upper surface of the foliage is covered with whitish blotches while minute black specks appear on the lower surface. Unless a constant watch is kept on the plants, and control measures properly executed, thrips are capable of causing severe injury within a short time.

CONTROL. **Deenate 50W** used at the rate of 1 - 1½ pounds to 100 gallons of water is the most effective control known. Other insecticides containing **D.D.T.** are also recommended.



*Tarnished Plant Bug Damage
(Note Absence of Growing Tip)*



Thrip Injury

Pests and Their Control

FOLIAR NEMATODE

The spread of this pest has been very rapid in recent years owing to the increased trade in chrysanthemums, and the ease with which the nematode is transported in plants and cuttings. Too few growers have become familiar with this pest and consequently no effort has been put forth to control it.

SYMPTOMS. The leaves attacked become blotched, turn at first greenish-yellow, then brownish, later gray and finally black until the entire leaf dies and hangs down on the stem. Under conditions of high humidity both in the open during a wet season and under glass owing to excessive watering, the spread of the pest may be extremely rapid.

CONTROL. Sodium Selenate applied in liquid form to the soil at the rate of $\frac{1}{4}$ gram per square foot of bed area is the most satisfactory control. Dissolve 1 pound of sodium selenate into $4\frac{1}{2}$ gallons of water, then take one quart of this stock solution and add to 25 gallons of water and this should be applied on 100 square feet of bench surface. One pound of sodium selenate will treat 1800 square feet. P40 applied at the rate of 3 pounds per 100 square feet has given fair control. Wait 2 to 4 weeks after benching before applying. This chemical may burn some varieties.

MILDREW

SYMPTOMS. Whitish powdery growth on upper surface of leaves.

CONTROL. Spray at regular weekly intervals with a good Wettable Sulfur, 1 lb. per 100 gallons of water to which a good commercial spreader has been added. Fermate, 1 ounce to 4 gallons of water is effective.

ROOT KNOT NEMATODE

SYMPTOMS. The nematodes or eelworms bore into the roots of the plants and cause knots or galls to develop on the root systems. As a result the plants are weak, yellowish and stunted in growth.

CONTROL. Steam sterilization of the soil is very effective in eliminating the nematodes. Dowfume G is a good soil fumigation that will kill nematodes and not do any damage to the surrounding plants.



Mildew



Dodder Growing on Mums

Diseases and Their Control

ROOT ROT

SYMPTOMS. Entire plant will wilt and recover during the evening. Foliage turns yellow, plant will die in a very short time. A number of soil borne organisms cause the loss of the roots.

CONTROL. Do not plant cuttings that have been infected with damping off. Use sterilized soil. Remove all affected plants when noticed. Do not keep the soil too moist.

RUST

SYMPTOMS. Chocolate brown powdery pustules on the lower surface of the leaves

CONTROL. **Fermate**, 1 ounce to 4 gallons of water is most effective.

SEPTORIA LEAF SPOT OR LEAF BLIGHT

SYMPTOMS. Distinct circular spots on the leaves. These are greyish brown in color and become brittle in the center. Affected leaves may turn yellow and die. More prevalent in the open. Some varieties are more susceptible than others. Sea Gull is very susceptible.

CONTROL. When cuttings are received dunk roots and tops into **Fermate** (2 tablespoonsful to a gallon). Spray the plants with **Fermate** 1 ounce to 4 gallons water plus $\frac{1}{3}$ teaspoonful of **DuPont Spreader Sticker** every ten to fourteen days. Cloth house mums should be kept covered until the buds can be seen. May we recommend that you add the sticker and a little water into a jar then add the **Fermate** and shake thoroughly. Then dump **Fermate** from the jar into sprayer with proper amount of water.

VERTICILLIUM WILT OR SEIDEWITZ DISEASE

SYMPTOMS. Margins of leaves turn yellow and eventually wilt or dry up. This begins at base of plant and works up the stems. May affect one side of a stem or plant more than the other. No distinct spots. Varieties vary in resistance to this disease.

CONTROL. Verticillium wilt can be avoided by purchasing our disease free cuttings produced from cultured stock. It is also necessary to plant only into sterilized soil.

DODDER

SYMPTOMS. Dodder is a parasitic twiner, bearing clusters of small flowers. They are leafless annuals, with very slender yellow, white or red stems, which become attached to the plant by means of root-like suckers. Dodder is occasionally found on chrysanthemums and will cause a complete loss of crop.

CONTROL. Dodder is common in low, weedy places and may be carried into the greenhouse in the soil or manure. Soil sterilization is the only prevention. After dodder is attached to the plants remove the affected plants and burn.



Rust on Chrysanthemum



Septoria Leaf Spot

Pests and Their Control

Dilution Table for Liquid Spray Materials

For measuring small amounts of liquids have a set of household measuring spoons, and a glass graduate marked in fluid ounces or a glass measuring cup marked in quarters and thirds.

1 pint = 16 fluid ounces (fl. oz.)

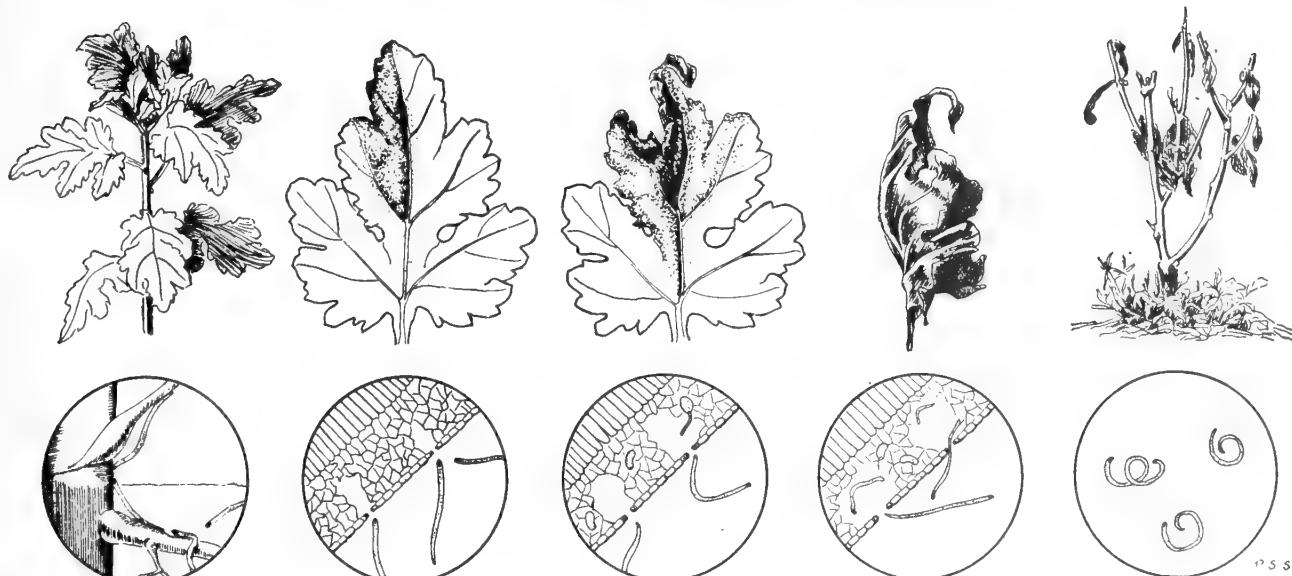
1 cupful = 8 fl. oz.

1 fl. oz. = 2 tablespoonfuls (tblsp.)

1 tblsp. = 3 teaspoonfuls (tsp.)

Recommended Dilution	Amount to use for the following quantities of spray					
	1 gallon	3 gallons	10 gallons	20 gallons	50 gallons	100 gallons
1 to 50	2½ fl. oz.	8 fl. oz.	1½ pt.	3 pint	1 gal.	2 gal.
1 to 100	1¼ fl. oz.	4 fl. oz.	13 fl. oz.	1½ pint	2 qt.	1 gal.
1 to 200	4 tsp.	2 fl. oz.	6½ fl. oz.	13 fl. oz.	1 qt.	2 qt.
1 to 400	2 tsp.	1 fl. oz.	3¼ fl. oz.	6½ fl. oz.	1 pint	1 qt.
1 to 600	1¼ tsp.	4 tsp.	2 fl. oz.	4½ fl. oz.	11 fl. oz.	1⅓ pt.
1 to 800	1 tsp.	1 tblsp.	1⅔ fl. oz.	3¼ fl. oz.	8 fl. oz.	1 pt.
1 to 1000	¾ tsp.	2¼ tsp.	1¼ fl. oz.	2½ fl. oz.	6½ fl. oz.	13 fl. oz.
1 to 1600	½ tsp.	1½ tsp.	¾ fl. oz.	1½ fl. oz.	4 fl. oz.	8 fl. oz.
1 to 2000	⅓ tsp.	1 tsp.	⅔ fl. oz.	1¼ fl. oz.	3¼ fl. oz.	6¼ fl. oz.

BIOLOGY OF THE FOLIAR NEMATODE



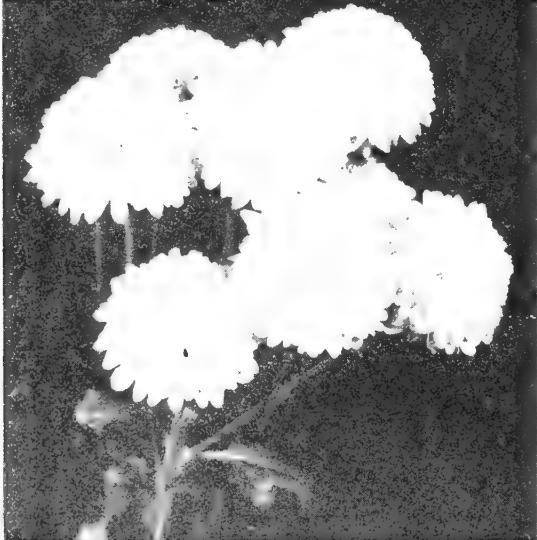
Eelworms becoming active and commencing their migration from the ground up the outside of the stem and leaf-stalks into the basal leaves. (Spring)

Eelworms entering leaf through the stomata. (Spring-Summer)

Eelworms feeding and breeding in leaves and migrating upwards from leaf to leaf. (Spring-Autumn)

Eelworms overwintering in soil, dead leaves and in basal buds. (Winter)

Novelty Chrysanthemums



CAROLINE YOSICK

This small, lavender pink pompon responds exceptionally well to black cloth shade and is particularly of value for August or September flowering along with Pinocchio and Gold Coast. You will welcome its dependable growing habit, as unlike Jewell, it does not crown, and compared with Jessie and Pink Dot, it has a more rigid stem than either one. The small decorative flower has excellent color-holding qualities even under the earliest shadings. Caroline Yosick shows up best under artificial light that remarkably softens or brightens the color. Natural blooming season October 20. Price \$90.00 per 1000.

GOLD COAST

A small, intense deep yellow pompon of firm substance flowering naturally October 25. Since Gold Coast can be shaded ideally, we are recommending it along with Pinocchio and Caroline Yosick as the important trio for shading in 1947. It has the same clean, vigorous free growing habit of Pinocchio and also resembles this variety very much in its production. For cloth house growing, it is a top notch variety — easily grown and consistently dependable. In our opinion, Gold Coast is a "must" for early shading. Price \$70.00 per 1000.

LAKME

A glistening small white pompon that matures normally November 12. It possesses a hard, durable, formal flower that easily satisfies the most critical demands for keeping and shipping quality. Its trim smart appearance is enhanced by a chartreuse eye. The habit of growth is free, wiry, and the dark, rigid stems develop a very productive compound spray. In growth habit and cultural requirements it very closely resembles the variety Cassandra. Its black cloth response is rapid and just nicely follows Pinocchio in the shading program. It lends itself well to out-of-season flowering and has been outstanding in the Cornell trials. High uniform production and the height of quality in its floral make-up assure Lakme a position of eminence in any list of early profitable white pompons. Price \$90.00 per 1000.

Novelty Chrysanthemums

SUNKIST

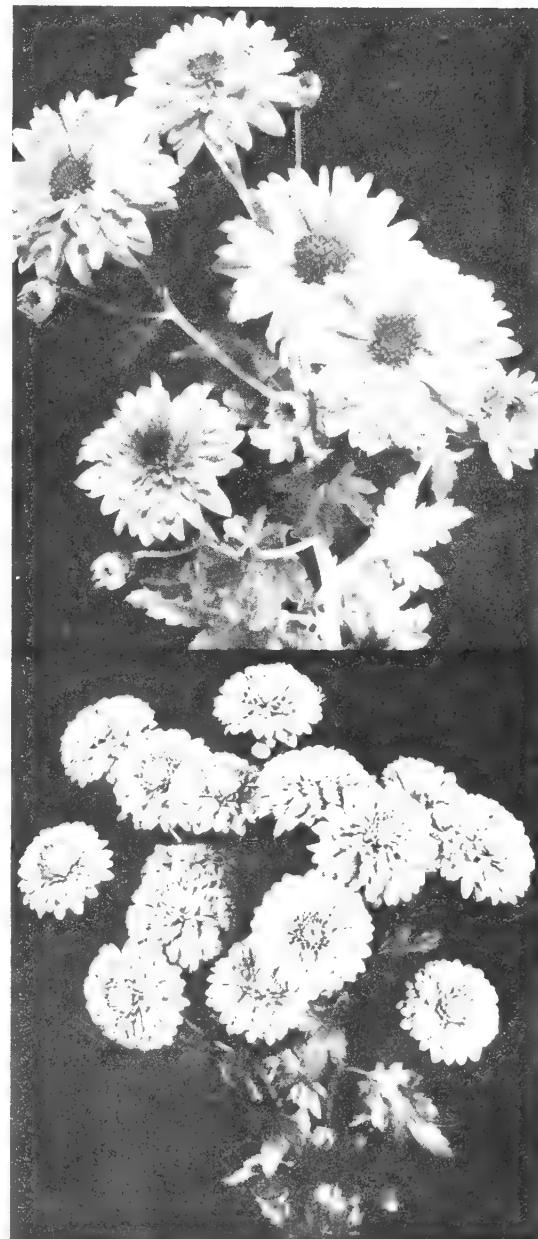
Here is an intense golden yellow single that flowers with Vibrant, December 20. Good for late planting along with Vibrant, Yukon, and Rosalind. The same ground bed culture you may be using for them, suits Sunkist also. It has responded very satisfactorily in preliminary trials when lighted for delayed flowering. Easy, dependable, and a golden daisy that fills a real demand at Christmas time. **Price \$90.00 per 1000.**

RED RUST

Vivid. Exquisite. Scintillating. All this and more could be said about the color of this new, well rounded, large pompon that blooms November 5. We will try to explain the shade by asking you to picture a beautiful blend of orange, red, and chrome bronze similar to Natoma. The habit of growth is clean, uniform and vigorous — making a variety easier to grow than Natoma. The sprays are well branched, giving a heavier production than Navaho. Red Rust DOES NOT SHADE and should be grown for its natural season only because its color is sensitive to the intense light of earlier shading periods. **Price \$90.00 per 1000.**

DEBONAIR

A decorative pompon of rich crimson red for December 5 normally. This is the top honor seedling of the 1945 National Chrysanthemum show in Cleveland. If lighted for the Christmas season, it should command premium prices, as we need not dwell upon the demand for a symmetrical velvety red at that time. Moderate temperatures, optimum light intensity and other environmental conditions which promote a firm wood and gradual elongation of stem and spray best suit this variety. A vigorous and healthy pompon you will be glad to have. Be sure to include Debonair in your 1947 plantings. **Price \$90.00 per 1000.**



Novelty Chrysanthemums



OMEGA

Omega is the best deep lemon yellow pompon to follow Sunny-side, maturing December 10. The formal flower possesses unusual substance and keeping qualities. Growth is strong, foliage dark and glossy, and the whole spray rigid and wiry. May we assure you that no blindness has been apparent and all tests indicate a high degree of resistance to verticillium. On ground beds with late planting and lights, Omega comes in nicely for Christmas. It can also be easily had for February flowering with lights. Price \$90.00 per 1000.

BROCADE

A very easily grown lively cameo pink daisy, flowering November 15. Brocade blooms same date as Masterpiece, and it resembles this variety in addition by responding to shading in the same way. As a mid-season pink, Brocade fills the gap in a good single between October Pink and W. H. Buckingham and the later variety, Valencia. Medium to tall in height the strong stems develop big, well branched sprays. Production is therefore high. A much needed variety for its season. Price \$90.00 per 1000.

DARK PINK ORCHID QUEEN

A sport of Orchid Queen of intense mauve pink much deeper than the parent. The sport shows many new and important qualities. The flower is larger and more fully rounded. Added vigor gives a stronger and taller stem than in the original. But most important of all, DARK PINK ORCHID QUEEN can be shaded for early flowering much more satisfactorily than Orchid Queen. A promising addition to your list of good standards. Price \$90.00 per 1000.

Novelty Chrysanthemums

HARVESTER

An intense canary yellow standard that blooms for Thanksgiving. The flower is of medium size, hard and durable, its bright, lustrous color; its wax-like petals and its very attractive semi-incurred form give this variety an appearance of substance and freshness that commands immediate attention. The foliage is attractive and healthy and is carried right up to the base of the flower. The stems are medium in size, strong and rigid. Harvester is a good shipper and is well liked by the retail trade. We recommend this variety to all growers as an easily grown bright yellow standard for the Thanksgiving season. Price \$90.00 per 1000.

REVELATION

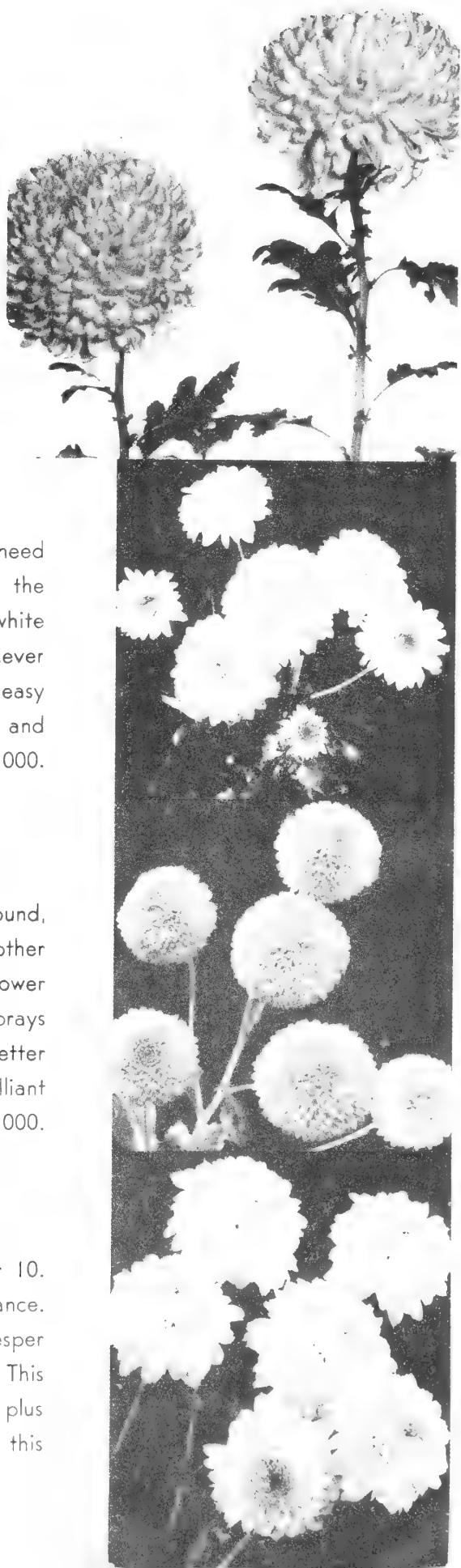
All florists both wholesale and retail are conscious of the need for quality flowers that can be produced in quantity for the January market. Revelation fills this need. It is a clear white pompon that blooms as late as or later than Snow. It has never been known to go blind. Revelation makes possible the easy production of high quality white pompons during Christmas and early January without loss of production. Price \$50.00 per 1000.

SUNNYSIDE

A persistent demand from all wholesale growers calls for a round, hard flower that will ship and handle without bruising or other damages. Sunnyside exactly fills this demand. It is a strong grower and will consistently produce a heavy crop of well branched sprays that are easy to bunch. The quality of the flower is equal or better than any existing yellow pompon. The color is a clear brilliant yellow. It matures for Thanksgiving and later. Price \$50.00 per 1000.

VESPER

Vesper is a white pompon that blooms normally November 10. The flower is very pure in color and has unusually good substance. Free growth, easy culture, and a well branched spray ranks Vesper with the best of the early dependable varieties now in use. This unique combination of flower quality and free growth habit plus its favorable response to black cloth treatment should make this variety very popular. Price \$50.00 per 1000.



Novelty Chrysanthemums

PINOCCHIO

A glistening white button for early cloth house shading. It responds beautifully to black cloth treatment and for this reason we believe it will fill the insistent demand for a small white pompon that can be easily shaded into late August and early September maturity. The flower is a beautifully formed tightly quilled button of lively and dainty appearance. It is of hard substance and has good keeping and shipping qualities. The color is a clear sparkling white. The growth is vigorous, taller than Irene and requires less time between pinching and shading to form a fuller spray of flowers. Bunches of Pinocchio appear smarter than Irene because the spray formation is more nearly single planed; and fresher because of the more uniform opening of its flowers. Price \$90.00 per 1000.



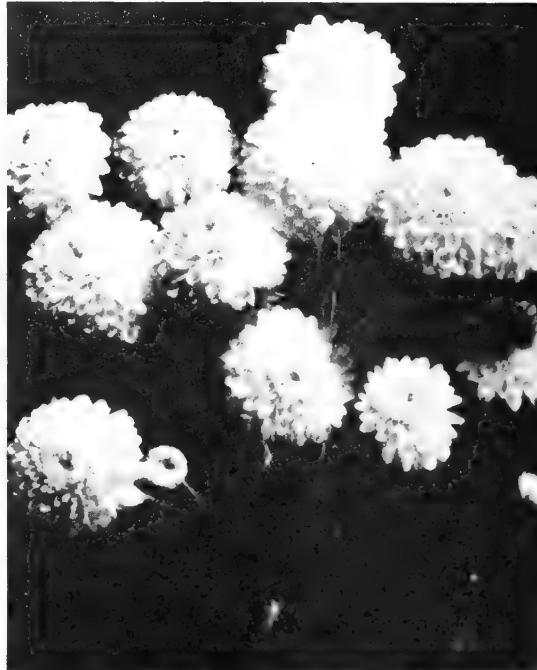
GOLDEN EMBLEM

Medium sized clear yellow pompon that blooms normally the end of November. The flowers are produced on well spaced sprays and are of close compact form with very good substance. It combines good quality with good production and disease resistance. Good results are obtained either in ground or raised benches. It will not produce blind growth so common in late varieties. Maturing the latter part of November, Golden Emblem will be found to be a welcome addition to yellow pompons in that season where quality and easy growth is combined with good production. Price \$90.00 per 1000.



MATCHLESS

Judged by present day standards this variety by all odds seems to be the best white pompon introduced to date. Matchless possesses large solid blooms of great substance. These are well placed on strong sprays. Stems are of ample length and are clean, straight and rigid. Its growth is very free and robust with beautiful light green luxuriant foliage. The variety breaks freely from pinches and produces well under nearly all conditions, the production being very good either in ground or raised benches. Normal blooming date November 20th to 22nd, making it ideal for Thanksgiving. Matchless shades well and for this purpose should be an excellent variety to follow Bushnell and similar varieties. We can recommend Matchless as a productive and an easily grown variety that responds well to nearly all types of cultural conditions. Awarded gold medal 1943. Price \$90.00 per 1000.



Novelty Chrysanthemums

NEW VARIETIES OF A FEW YEARS AGO. DON'T FAIL TO ADD THESE TO YOUR LIST.

BARCAROLE

An intense golden yellow pompon that blooms normally November 5. The habit of growth is outstanding vigorous. It is of extremely easy culture and its good foliage and high production make it a good variety.

Above Varieties \$90.00 per 1000.

BRONZE GOLDSMITH

A beautifully blended orange and Brazil red sport from Goldsmith. Carefully grown Bronze Goldsmith can be one of the outstanding bronze pompons for late November flowering.

Above Varieties \$70.00 per 1000.

CASSANDRA

A bright orange bronze pompon that is a distinct advance in color for its season of November 10. It has fully rounded form and good substance. Cassandra has proven an excellent variety for cloth house shade.

NAVAHO

A medium-sized deep crimson, decorative pompon which changes to a reddish bronze under early shading. It responds well to black cloth and fills a great need for a cloth house variety in its color range.

Above Varieties \$50.00 per 1000.

JEAN ELIZABETH

This white sport from Orchid Queen is a variety that responds very well to delayed flowering culture. Heavy grower with true incurved bloom. It is not sensitive to cultural environment. High quality flower maturing November 12.

Above Varieties \$40.00 per 1000.

New Gardan Varieties

AVIATOR

A rich coppery red pompon maturing October 10. A vigorous and easy grower.

ALLEGRO

A glowing shrimp-pink suffused with coppery salmon pompon. One of the finest varieties for cutting, maturing October 15.

Above Varieties \$90.00 per 1000.

YELLOW CAMEO

A deep lemon yellow sport from Cameo. The form and growth habit are identical with the parent variety. Because of the popularity of Cameo, this attractive yellow counterpart should be a very valuable variety for early December flowering.

SYLVANNA

A high quality single that matures November 10. The color, a brilliant orange bronze holds well with full maturity, allowing an excellent period for marketing.

PIXIE

A small well-rounded pompon somewhat larger than Nuggets. The color improves that variety in that it is much brighter and therefore more attractive. It is a remarkably good shipper. It responds beautifully to cloth house practice. It blooms normally November 10.

SEAFOAM

A white, medium sized pompon with a full center and well-rounded form, that blooms November 20. The flower resembles Bushnell. It responds satisfactorily to cloth house practices when grouped with the later varieties.

INDIANAPOLIS YELLOW

This lemon yellow sport from Indianapolis Pink is another valuable addition to the very popular Indianapolis family. We think this is the best yellow mum for its specific flowering date. This variety has been re-selected so that it will stay true to color.

MORNING STAR

Extremely early flowering cream yellow, blooming from September until killing frost. A dwarf vigorous grower.

MORNING GLOW

A lovely early flowering lavender-mauve-pink. A most desirable color for September.

Large Flowering Varieties

YELLOW

Name and Description	Last Pinch	Height	Select Bud	Matures	Rooted Price Per 1000
Gold Lode. Light golden yellow. Reflexed.....	July 5	Med.	Aug. 25	Oct. 1	\$40.00
Golden October. Deep lemon yellow. Incurved.	July 5	Med.	Aug. 25	Oct. 10	40.00
Celestra. Lemon yellow. Incurved.....	July 5	Med.	Ter. Bud	Oct. 15	40.00
Mrs. H. E. Kidder. Deep lemon yellow. Incurved	July 12	Med.	Aug. 25	Oct. 20	40.00
Yellow Ambassador. Lemon yellow. Incurved...	July 12	Med.	Ter. Bud	Oct. 23	40.00
Blazing Gold. Deep golden yellow. Incurved...	July 12	Med.	Ter. Bud	Oct. 25	40.00
Sunglow. Golden Yellow. Incurved	July 12	Med.	Aug. 25	Oct. 25	40.00
Citronella. Light buff yellow. Incurved	July 12	Short	Aug. 31	Oct. 28	40.00
Golden Glory. Golden yellow. Semi-incurved...	July 16	Short	Aug. 25	Nov. 1	40.00
Good News. Deep lemon yellow. Incurved....	July 16	Med.	Aug. 30	Nov. 1	40.00
Yellow Turner. Light yellow. Incurved.....	July 16	Med.	Aug. 30	Nov. 5	40.00
Indianapolis Yellow. Lemon yellow. Incurved...	July 19	Med.	Ter. Bud	Nov. 8	40.00
Cardonia. Deep golden yellow. Incurved.....	July 19	Med.	Sept. 5	Nov. 10	40.00
Penrod. Golden yellow. Incurved	July 19	Med.	Ter. Bud	Nov. 10	40.00
Whittier. Lemon yellow. Incurved.....	July 19	Med.	Sept. 15	Nov. 13	40.00
Yellow Monument. Lemon yellow. Incurved....	July 22	Med.	Sept. 10	Nov. 15	40.00
Yellow Mefo. Lemon yellow. Incurved.....	July 25	Med.	Sept. 20	Nov. 20	40.00
Friendly Rival. Deep chrome yellow. Incurved..	July 25	Med.	Sept. 10	Nov. 20	40.00
Marie DePetris. Deep golden yellow. Incurved.	July 25	Short	Sept. 15	Nov. 23	40.00
Harvester. Deep canary yellow. Incurved.....	July 28	Med.	Sept. 30	Nov. 25	90.00
Sun Gold. Lemon yellow. Semi-Incurved.....	July 28	Med.	Sept. 30	Nov. 25	40.00
Golden Pearson. Golden yellow. Incurved.....	July 28	Med.	Sept. 30	Nov. 25	40.00
Improved Yellow Chattanooga. Incurved.....	July 28	Med.	Sept. 20	Nov. 25	40.00
Golden Mrs. Ross. Golden yellow. Incurved....	July 31	Tall	Ter. Bud	Dec. 3	40.00
Golden Mistletoe. Pale golden yellow. Incurved	Aug. 4	Med.	Sept. 30	Dec. 10	40.00
Meteore. Lemon yellow. Incurved	Aug. 4	Med.	Ter. Bud	Dec. 10	70.00
Improved Tobin's Late Yellow. Deep lemon yellow Semi-incurved	Aug. 10	Short	Sept. 30	Dec. 15	40.00

WHITE

Smith's Early White. Incurved	July 1	Tall	Aug. 10	Oct. 5	40.00
Quaker Maid. White. Reflexed.....	July 5	Med.	Aug. 25	Oct. 15	40.00
Silver Sheen. Incurved.....	July 12	Med.	Aug. 30	Oct. 18	40.00
Christina. Incurved	July 12	Short	Aug. 25	Oct. 20	40.00
Ambassador. Cream white. Incurved.....	July 12	Med.	Ter. Bud	Oct. 23	40.00
Snow White. Incurved	July 16	Med.	Ter. Bud	Nov. 1	40.00
Betsy Ross. Ivory white. Incurved.....	July 16	Tall	Aug. 25	Nov. 1	40.00
William Turner. White. Incurved.....	July 16	Med.	Aug. 30	Nov. 5	40.00
Indianapolis White. Incurved	July 19	Med.	Ter. Bud	Nov. 8	40.00
Jean Elizabeth. Incurved	July 19	Med.	Ter. Bud	Nov. 12	40.00
Monument. Ivory white. Incurved.....	July 22	Med.	Sept. 10	Nov. 15	40.00
Marketeer. Incurved	July 25	Med.	Ter. Bud	Nov. 18	40.00
Mefo. Ivory white. Incurved.....	July 25	Med.	Sept. 20	Nov. 20	40.00
White Frick. White suffused with pink. Incurved	July 28	Short	Sept. 10	Nov. 25	40.00
Chattanooga. Incurved	July 28	Med.	Sept. 20	Nov. 25	40.00
December Glory. Ivory white. Incurved.....	July 31	Tall	Sept. 30	Dec. 1	40.00
December White. Incurved.....	Aug. 4	Med.	Ter. Bud	Dec. 5	70.00
Improved December Beauty. Incurved.....	Aug. 4	Med.	Oct. 1	Dec. 8	40.00
White Mistletoe. Incurved	Aug. 4	Med.	Sept. 30	Dec. 10	40.00
Margaret Moeller. Incurved	Aug. 4	Med.	Sept. 30	Dec. 10	90.00
Smith's Late White. Ivory white. Semi-incurved	Aug. 10	Short	Sept. 30	Dec. 15	40.00

FOR SHADING INFORMATION SEE PAGES 12 to 16

Large Flowering Varieties

BRONZE

Name and Description	Last Pinch	Height	Select Bud	Matures	Rooted Price Per 1000
Indianola. Pale reddish bronze. Incurved.....	July 5	Med.	Aug. 25	Oct. 10	\$40.00
Hilda Bergen. Dark reddish bronze. Incurved..	July 12	Med.	Aug. 25	Oct. 25	40.00
Alameda. Reddish bronze. Incurved.....	July 12	Short	Ter. Bud	Oct. 25	40.00
Glitters. Deep reddish orange. Reflexed.....	July 12	Med.	Ter. Bud	Oct. 28	40.00
Apricot Queen. Orange bronze. Incurved.....	July 16	Short	Sept. 5	Nov. 1	40.00
Detroit News. Reddish bronze. Incurved.....	July 16	Med.	Aug. 30	Nov. 1	40.00
Ivanhoe. Reddish bronze. Incurved.....	July 16	Med.	Aug. 30	Nov. 1	90.00
Indianapolis Bronze. Buff bronze. Incurved.....	July 19	Med.	Ter. Bud	Nov. 8	40.00
Anaconda. Coppery bronze. Incurved.....	July 19	Tall	Sept. 15	Nov. 10	50.00
Bronze Orchid Queen. Apricot buff. Incurved..	July 19	Med.	Ter. Bud	Nov. 12	40.00
Gladys Pearson. Light buff bronze. Incurved...	July 28	Med.	Sept. 30	Nov. 25	40.00
Oak Leaf. Reddish bronze. Incurved.....	July 28	Med.	Sept. 30	Nov. 25	40.00
Bronze Frick. Light bronze. Incurved.....	July 28	Short	Sept. 10	Nov. 25	40.00
Bronze Mistletoe. Buff bronze. Incurved.....	Aug. 4	Med.	Sept. 30	Dec. 10	40.00

PINK

Early October. Light lavender. Semi-incurved..	July 5	Med.	Ter. Bud	Oct. 10	70.00
Pink Chief. Lavender. Incurved.....	July 5	Tall	Ter. Bud	Oct. 15	40.00
Justrite. Light rose pink. Incurved.....	July 5	Short	Ter. Bud	Oct. 15	40.00
October Rose. Light lavender. Incurved.....	July 5	Med.	Sept. 5	Oct. 15	40.00
Major Ed. Bowes. Deep lavender. Incurved....	July 12	Med.	Aug. 30	Oct. 20	40.00
Pink Turner. (Mrs. Leslie Davis). Lavender. Incurv.	July 16	Med.	Aug. 30	Nov. 5	40.00
J. W. Prince. Rose pink. Incurved.....	July 16	Short	Aug. 30	Nov. 5	40.00
Indianapolis Pink. Deep lavender. Incurved....	July 19	Med.	Ter. Bud	Nov. 8	40.00
Dark Pink Orchid Queen. Mauve Pink. Incurved	July 19	Med.	Ter. Bud	Nov. 12	90.00
Orchid Queen. Orchid pink. Incurved.....	July 19	Med.	Ter. Bud	Nov. 12	40.00
Thanksgiving Pink. Amaranth. Reflexed.....	July 25	Short	Sept. 15	Nov. 23	40.00
Helen Frick. Rose pink. Incurved.....	July 28	Short	Sept. 10	Nov. 25	40.00
Edwin Seidewitz. Lavender. Incurved.....	July 30	Tall	Sept. 15	Nov. 30	40.00
Pink Mistletoe. Lavender. Incurved.....	Aug. 4	Med.	Sept. 30	Nov. 10	40.00

RED

Mrs. David F. Roy. Crimson. Incurved.....	July 22	Short	Sept. 15	Nov. 10	40.00
Garnet King. Dark red. Reflexed.....	July 25	Med.	Sept. 20	Nov. 18	40.00

HARVESTER

An intense canary yellow standard that blooms for Thanksgiving. The flower is of medium size, hard and durable, its bright, lustrous color; its wax-like petals and its semi-incurved form give this variety an appearance of substance and freshness. Harvester is an easy grower and well liked by the retail trade.

Price \$90.00 per 1000.

FOR CULTURAL POINTERS
SEE PAGES 1 to 10



Pompon and Decorative Varieties

YELLOW

Name and Description	Last Pinch	Height	Size & Type	Matures	Rooted Price Per 1000
Yellow Irene. Light lemon yellow	July 8	Short	S. Pom.	Oct. 18	\$40.00
Rodell Improved. Light lemon yellow	July 8	Short	Int. Pom.	Oct. 20	40.00
Yellow Hammer. Golden yellow	July 8	Tall	Int. Pom.	Oct. 20	40.00
Golden Spray. Deep lemon yellow	July 12	Med.	Int. Pom.	Oct. 23	40.00
Gold Coast. Golden yellow	July 12	Med.	Int. Pom.	Oct. 25	70.00
*Golden Herald. Deep golden yellow	July 12	Med.	L. Dec.	Oct. 25	40.00
Yellow Dot. Yellow with bronze center	July 12	Med.	Int. Pom.	Oct. 25	40.00
Yellow Arcadia. Pernet yellow	July 16	Med.	Int. Pom.	Oct. 28	40.00
Mary Lennon Hall. Deep lemon yellow	July 16	Tall	Int. Pom.	Nov. 1	40.00
Yellow Sea Gull. Pale lemon yellow	July 16	Tall	Int. Pom.	Nov. 1	40.00
Barcarole. Golden yellow	July 19	Med.	Int. Pom.	Nov. 5	90.00
Nuggets. Light lemon yellow	July 19	Short	S. Pom.	Nov. 5	40.00
Yellow Bushnell. Pernet yellow	July 19	Tall	Int. Pom.	Nov. 8	40.00
Derigold. Deep golden yellow	July 19	Med.	Int. Pom.	Nov. 10	40.00
Pixie. Deep golden yellow	July 19	Med.	S. Pom.	Nov. 10	50.00
Princeton. Orange yellow	July 22	Med.	Int. Dec.	Nov. 15	40.00
Yellow Fellow. Deep lemon yellow	July 22	Med.	Int. Dec.	Nov. 15	40.00
Golden Surprise. Sulphur yellow	July 25	Med.	Int. Pom.	Nov. 18	50.00
Golden Emblem. Golden yellow	July 25	Med.	Int. Pom.	Nov. 20	90.00
Hasegawa Gold. Light golden yellow	July 25	Med.	Int. Pom.	Nov. 23	40.00
Sunnyside. Golden yellow	July 28	Med.	Int. Pom.	Nov. 25	50.00
*Goldsmith. Golden yellow	July 28	Med.	Int. Dec.	Nov. 25	40.00
Yellow Cordova. Lemon yellow	July 28	Med.	Int. Dec.	Nov. 30	40.00
Yellow Cameo. Deep lemon yellow	July 31	Med.	Int. Pom.	Dec. 5	90.00
Omega. Lemon yellow	Aug. 2	Med.	Int. Pom.	Dec. 10	90.00
*December Gold. Deep golden yellow	Aug. 2	Med.	Int. Dec.	Dec. 15	40.00
*Vibrant. Deep lemon yellow	Aug. 4	Med.	Int. Dec.	Dec. 20	40.00
Yellow Snow. Deep lemon yellow	Aug. 10	Med.	Int. Pom.	Dec. 30	40.00

WHITE

Uvalda. Cream white	July 8	Med.	Int. Pom.	Oct. 10	40.00
White Jewell. White tinged with light lavender	July 8	Short	S. Pom.	Oct. 15	40.00
*Silver Ball.	July 8	Med.	L. Pom.	Oct. 15	40.00
Irene.	July 8	Short	S. Pom.	Oct. 18	40.00
Minong.	July 12	Med.	S. Pom.	Oct. 20	40.00
Pinocchio.	July 12	Med.	S. Pom.	Oct. 25	90.00
Arcadia.	July 16	Med.	Int. Pom.	Oct. 28	40.00
Sea Gull. Cream white	July 16	Tall	Int. Pom.	Nov. 1	40.00
*White Doty. Ivory white	July 16	Tall	L. Pom.	Nov. 1	40.00
Crystal Jewell.	July 19	Tall	S. Pom.	Nov. 8	40.00
Rev. Horace Bushnell. Cream white	July 19	Tall	Int. Pom.	Nov. 8	40.00
Vesper.	July 19	Tall	Int. Pom.	Nov. 10	50.00
Lakme.	July 22	Med.	Int. Pom.	Nov. 12	90.00
Chicago Pearl. Ivory white	July 22	Med.	Int. Pom.	Nov. 15	40.00
Matchless.	July 25	Med.	Int. Pom.	Nov. 20	90.00
Pearl.	July 25	Med.	Int. Pom.	Nov. 20	40.00
Seafoam.	July 25	Med.	Int. Pom.	Nov. 20	50.00
Priscilla.	July 28	Tall	L. Pom.	Nov. 28	70.00
*White Yuletide.	July 28	Short	Int. Pom.	Nov. 28	40.00
Cordova. Cream white	July 28	Med.	Int. Dec.	Nov. 30	40.00
Royal Queen.	July 31	Med.	Int. Pom.	Dec. 5	40.00
Cameo. Ivory white	July 31	Med.	Int. Pom.	Dec. 5	40.00
December Glory. Ivory white	Aug. 6	Med.	Int. Dec.	Dec. 15	40.00
Ivory Snow. Ivory yellow	Aug. 10	Med.	Int. Pom.	Dec. 30	70.00
Snow. Ivory white	Aug. 10	Med.	Int. Pom.	Dec. 30	40.00
Revelation.	Aug. 10	Med.	Int. Pom.	Jan. 5	50.00

* Responds to disbudding.

Pompon and Decorative Varieties

BRONZE

Name and Description	Last Pinch	Height	Size & Type	Matures	Rooted Price Per 1000
Roman Bronze. Bronze suffused with pink.....	July 12	Tall	Int. Pom.	Oct. 20	\$40.00
Adelaide. Dark reddish bronze.....	July 12	Med.	S. Pom.	Oct. 23	40.00
* Jemima. Dark reddish bronze.....	July 12	Med.	Int. Pom.	Oct. 23	40.00
Fire Bird. Dark reddish bronze.....	July 12	Med.	Int. Dec.	Oct. 25	40.00
Red Rust. Reddish bronze.....	July 19	Med.	L. Pom.	Nov. 5	90.00
Bronze Bulkeley. Bronze suffused with pink.....	July 19	Tall	Int. Pom.	Nov. 8	40.00
Cassandra. Orange bronze.....	July 22	Med.	Int. Pom.	Nov. 10	50.00
New York. Reddish bronze.....	July 22	Med.	S. Pom.	Nov. 13	40.00
* Bronze Masterpiece. Apricot bronze.....	July 22	Med.	Int. Pom.	Nov. 15	40.00
Catherine. Light reddish bronze.....	July 25	Med.	Int. Dec.	Nov. 20	40.00
Legal Tender. Bronze and gold.....	July 25	Med.	Int. Dec.	Nov. 20	40.00
* Bronze Goldsmith. Mars orange.....	July 28	Med.	Int. Dec.	Nov. 25	70.00
Dorothy Turner. Deep reddish bronze.....	July 28	Med.	Int. Pom.	Nov. 25	40.00

PINK

Jewell. Lavender	July 8	Short	S. Pom.	Oct. 15	40.00
Dark Pink Jewell. Deep lavender.....	July 8	Short	S. Pom.	Oct. 15	40.00
Caroline Yosick. Lavender	July 8	Med.	S. Dec.	Oct. 20	90.00
Pink Pearl. Rose pink.....	July 8	Med.	S. Pom.	Oct. 20	40.00
Capt. Cook. Deep rose pink.....	July 12	Tall	Int. Pom.	Oct. 20	40.00
Jessie. (Madeline). Light lavender	July 12	Med.	Int. Pom.	Oct. 25	40.00
Pink Dot. White with pink center.....	July 12	Med.	Int. Pom.	Oct. 25	40.00
Isobel. Light lavender	July 16	Med.	S. Pom.	Nov. 1	40.00
* Lillian Doty. Light rose pink.....	July 16	Med.	L. Pom.	Nov. 1	40.00
Dark Pink Bulkeley. Dark rose pink.....	July 19	Tall	Int. Pom.	Nov. 8	40.00
Mrs. Morgan G. Bulkeley. Light rose pink....	July 19	Tall	Int. Pom.	Nov. 8	40.00
* Thyra. Lavender	July 19	Med.	L. Pom.	Nov. 10	40.00
* Masterpiece. Tourmaline pink	July 22	Med.	Int. Pom.	Nov. 15	40.00
Uneeda. Lavender	July 28	Med.	Int. Pom.	Nov. 25	40.00
Usona. Lavender	July 28	Med.	Int. Pom.	Nov. 25	40.00
Prosperity. Deep lavender	Aug. 2	Med.	Int. Dec.	Dec. 10	40.00
Riviera. Luminous pink	Aug. 2	Med.	Int. Dec.	Dec. 10	50.00
Pink Treasure Island. Light lavender.....	Aug. 6	Med.	Int. Dec.	Dec. 20	40.00

RED

Natoma. Flame scarlet	July 12	Short	Int. Dec.	Oct. 25	40.00
Robin Hood. Dark red.....	July 19	Med.	S. Pom.	Nov. 5	40.00
Navaho. Dark red	July 19	Med.	Int. Dec.	Nov. 5	50.00
Red Princeton. Brazil red.....	July 22	Med.	Int. Dec.	Nov. 15	40.00
Royal Crimson. Dark crimson.....	July 31	Med.	L. Dec.	Dec. 1	40.00
Cavalcade. Mandarin red	Aug. 2	Med.	Int. Pom.	Dec. 10	40.00
Debonair. Crimson red	Aug. 2	Med.	L. Pom.	Dec. 10	90.00

* Responds to disbudding.

Single-Daisy Type Varieties

YELLOW

Name and Description	Last Pinch	Height	Size	Matures	Rooted Price Per 1000
Yellow Daisy. Deep lemon yellow	July 16	Med.	Int.	Nov. 1	\$40.00
Lodestar. Golden yellow	July 28	Med.	Int.	Nov. 25	70.00
*Golden Jane. Brilliant golden yellow	July 28	Med.	Large	Nov. 30	50.00
Sunkist.	Aug. 7	Med.	Int.	Dec. 20	90.00

WHITE

*White Mensa. Ivory white	July 22	Med.	Int.	Nov. 10	40.00
Yukon.	Aug. 7	Tall	Int.	Dec. 10	40.00

BRONZE

October Bronze. Light bronze	July 16	Med.	Int.	Oct. 28	40.00
Bronze Daisy. Light bronze	July 16	Med.	Int.	Nov. 1	40.00
Bronze Buckingham. Light orange bronze	July 16	Short	Int.	Nov. 3	40.00
Sylvanna. Bittersweet orange	July 22	Med.	Int.	Nov. 10	70.00
*Apricot Valencia. Deep apricot buff	July 28	Med.	Large	Nov. 30	50.00
*Jane. Light buff bronze. Sport from Valencia..	July 28	Med.	Large	Nov. 30	40.00

PINK

October Pink. Light lavender	July 16	Med.	Int.	Oct. 28	40.00
W. H. Buckingham. Rose pink	July 16	Short	Int.	Nov. 3	40.00
Brocade. Cameo pink	July 22	Med.	Int.	Nov. 15	90.00
Hasegawa Pink. Lavender	July 28	Med.	Int.	Nov. 25	40.00
*Valencia. Orchid pink	July 28	Med.	Large	Nov. 30	40.00
*Dark Pink Valencia. Deep orchid pink.....	July 28	Med.	Large	Nov. 30	40.00
Rosalind. Rose pink	Aug. 7	Tall	Int.	Dec. 20	40.00

RED

Red Daisy. Deep red	July 19	Med.	Int.	Nov. 5	40.00
Bittersweet. Bittersweet red	July 19	Med.	Int.	Nov. 8	90.00
*Europa. Cardinal red.....	July 22	Short	Large	Nov. 10	40.00
*Red Melba. Light red	July 22	Short	Large	Nov. 10	40.00
*Carnelia. Bittersweet red	July 28	Short	Large	Nov. 30	40.00
Sarong. Crimson scarlet	Aug. 4	Med.	Int.	Dec. 15	40.00

* Responds to disbudding.

Insecticides and Fungicides

Arsenate of Lead.	4 lbs. \$1.00 — 24 lbs. \$4.50
Calcium Cyanide G. Fumigant.	5 lbs. \$3.00 — 25 lbs. \$10.00
Deenate 50 W (DDT). .	4 lbs. \$3.20 — 25 lbs. \$18.75
Du Pont Spreader Sticker.	Gal. \$4.95 — 5 gal. \$23.00
Evergreen.	Gal. \$12.60
Fermate.	3 lbs. \$2.70 — 25 lbs. \$18.75
Loro.	Gal. \$10.50 — 5 gal. \$45.00
New Libersol.	Gal. \$10.00
Nicotume Liquid.	Gal. \$11.25 — 5 gal. \$45.75

Nicotume Pressure Fumigators.

1/2 lb. cans (12 cans)	\$4.45
1 lb. cans (12 cans)	\$7.40
NNOR.	Gal. \$10.00
No-Py-Ro.	Gal. \$10.00 — 5 gal. \$45.00
Optox	Gal. \$10.50
Red Arrow Special.	Gal. \$14.50
Sodium Selenate.	Per lb. \$4.00
Tarter Emetic.	10 lbs. \$8.50 — 100 lbs. \$75.00
Tobacco Dust.	100 lbs. \$3.50 — Ton \$65.00
Thiocide.	Gal. \$6.00
Yamtox	Gal. \$12.00

Anemone Flowered Varieties

YELLOW

Name and Description	Last Pinch	Height	Size	Matures	Price Rooted Per 1000
* Helios. Deep golden yellow.....	July 22	Med.	Large	Nov. 10	\$40.00
Sunray. Light lemon yellow.....	July 22	Med.	Int.	Nov. 10	40.00
* Yellow Freida. Lemon yellow.....	July 22	Med.	Large	Nov. 15	50.00
* Susanne Miller. Buff yellow. Sport from Norma	July 25	Tall	Large	Nov. 18	40.00
* Yellow Rolinda. Light buff yellow.....	July 25	Med.	Int.	Nov. 23	40.00
* Gleam. Deep lemon yellow	July 31	Tall	Int.	Dec. 5	40.00
* Yellow Supreme. Buff yellow suffused with pink	Aug. 2	Med.	Large	Dec. 10	40.00
Yellow Garza Supreme. Pale lemon yellow....	Aug. 4	Short	Int.	Dec. 15	40.00

WHITE

Blanche.	July 16	Med.	Int.	Nov. 1	40.00
White Izola.	July 16	Short	Int.	Nov. 1	40.00
* White Anemone.	July 19	Tall	Int.	Nov. 5	40.00
* Shasta.	July 19	Med.	Int.	Nov. 8	40.00
* Little America.	July 19	Med.	Int.	Nov. 10	40.00
* White Freida. White with yellow cushion.....	July 22	Med.	Large	Nov. 15	40.00
* White Norma. White suffused with pink.....	July 25	Tall	Large	Nov. 18	40.00
* Nevada. White with chartreuse green cushion.	July 28	Med.	Int.	Nov. 20	70.00
* Long Island Beauty. White with yellow cushion.	July 25	Med.	Large	Nov. 20	40.00
* White Supreme. White suffused with pink.....	Aug. 2	Med.	Large	Dec. 10	40.00
Garza Supreme.	Aug. 4	Short	Int.	Dec. 15	40.00

BRONZE

Bronze Izola. Reddish bronze	July 16	Short	Int.	Nov. 1	40.00
Yolanda. Light orange bronze.....	July 28	Med.	Int.	Nov. 25	40.00
* Bronze Supreme. Light bronze suffused with pink	Aug. 2	Med.	Large	Dec. 10	40.00

PINK

Pink Izola. Lavender	July 16	Short	Int.	Nov. 1	40.00
Orchid Beauty. Orchid with golden cushion...	July 22	Med.	Int.	Nov. 15	40.00
* Freida. Light lavender with yellow cushion....	July 22	Med.	Large	Nov. 15	40.00
* Norma. Orchid pink petals with salmon cushion	July 25	Tall	Int.	Nov. 18	40.00
* Dark Pink Norma. Deep lavender.....	July 25	Tall	Int.	Nov. 18	40.00
* Beautiful Lady. Deep lavender rays with cream white cushion	July 28	Short	Large	Nov. 25	40.00
* Enchantress. Deep pink with light pink cushion.	July 31	Med.	Large	Dec. 5	40.00
* Dark Pink Supreme. Lavender.....	Aug. 2	Med.	Large	Dec. 10	40.00

RED

Red Izola. Deep red	July 16	Short	Int.	Nov. 1	40.00
* The Titan. Scarlet crimson with bronzy red cushion	July 19	Med.	Large	Nov. 10	40.00
* Red Rolinda. Deep reddish bronze	July 25	Med.	Int.	Nov. 23	40.00

* Responds to disbudding.

Pot Plant Varieties

YELLOW

Name and Description	Last Pinch	Type	Spray or Disbud	Matures	Rooted Price Per 1000
Early Yellow. Light golden yellow.....	Aug. 24	S. Pom.	Spray	Sept. 15	\$40.00
Pomponette. Light buff yellow.....	Aug. 24	Int. Pom	Spray	Sept. 20	40.00
Gold Lode. Golden yellow.....	Aug. 24	L. F. Dec.	Disbud	Oct. 1	40.00
Rodell Improved. Yellow. Sport from Rodell.....	Aug. 24	Int. Pom.	Spray	Oct. 20	40.00
Mrs. H. E. Kidder. Bright Yellow.....	Aug. 24	L. F. Inc.	Disbud	Oct. 20	40.00
Cincinnati. Golden yellow.....	Aug. 24	L. Pom.	Disbud	Oct. 20	40.00
Golden Spray. Deep lemon yellow.....	Aug. 24	Int. Pom.	Spray	Oct. 23	40.00
Blazing Gold. Deep golden yellow.....	Aug. 24	L. F. Inc.	Disbud	Oct. 25	40.00
Sunglow. Yellow.....	Aug. 24	L. F. Inc.	Disbud	Oct. 25	40.00
Golden Glory. Golden yellow.....	Aug. 24	L. F. Inc.	Disbud	Nov. 1	40.00
Indianapolis Yellow. Lemon yellow.....	Aug. 29	L. F. Inc.	Disbud	Nov. 8	40.00
Cardonia. Deep golden yellow.....	Aug. 29	L. F. Inc.	Disbud	Nov. 10	40.00
Yellow Beauty. Golden yellow.....	Aug. 29	L. Pom.	Disbud	Nov. 10	40.00
Sunray. Yellow.....	Sept. 3	Int. Anem.	Spray	Nov. 15	40.00
Yellow Fellow. Deep lemon yellow.....	Sept. 3	Int. Dec.	Spray	Nov. 15	40.00
Friendly Rival. Large golden yellow.....	Sept. 3	L. F. Inc.	Disbud	Nov. 20	40.00
Bonnatton DeLuxe. Golden yellow.....	Sept. 3	L. F. Inc.	Disbud	Nov. 20	40.00
Marie De Petris. Deep golden yellow.....	Sept. 3	L. F. Inc.	Disbud	Nov. 23	40.00
Yellow Rolinda. Buff yellow.....	Sept. 8	Int. Anem.	Spray	Nov. 23	40.00
Sun Gold. Lemon yellow.....	Sept. 8	L. F. Dec.	Disbud	Nov. 25	40.00

WHITE

White Jewell. White suffused with pink.....	Aug. 24	S. Pom.	Spray	Oct. 15	40.00
Irene. White.....	Aug. 24	S. Pom.	Spray	Oct. 18	40.00
Minong. White.....	Aug. 24	S. Pom.	Spray	Oct. 20	40.00
Christina. White, sport from Rose Chochard.....	Aug. 24	L. F. Inc.	Disbud	Oct. 20	40.00
Granite State. White.....	Aug. 24	L. Pom.	Disbud	Oct. 25	90.00
White Izola.	Aug. 29	Int. Anem.	Disbud	Nov. 1	40.00
Snow White.	Aug. 24	L. F. Inc.	Disbud	Nov. 1	40.00
Indianapolis White. White.....	Aug. 29	L. F. Inc.	Disbud	Nov. 8	40.00
Richard Mandel. Pure white.....	Aug. 29	L. Pom.	Disbud	Nov. 10	40.00
Little America. Pure white.....	Aug. 29	Int. Anem.	Disbud	Nov. 10	40.00
Marketeer. White.....	Sept. 3	L. F. Inc.	Disbud	Nov. 18	40.00
Long Island Beauty. White with yellow cushion..	Sept. 3	L. Anem.	Disbud	Nov. 20	40.00
White Frick. White suffused with pink.....	Sept. 3	L. F. Inc.	Disbud	Nov. 25	40.00

BRONZE and RED

Early Bronze. Orange bronze	Aug. 24	S. Pom.	Spray	Sept. 15	40.00
Indianola. Light bronze	Aug. 24	L. F. Inc.	Disbud	Oct. 10	40.00
Alameda. Reddish bronze with buff reverse.....	Aug. 29	L. F. Inc.	Disbud	Oct. 25	40.00
Hilda Bergen. Bronze	Aug. 24	L. F. Inc.	Disbud	Oct. 25	40.00
Glitters. Bright bronze	Aug. 29	L. F. Dec.	Disbud	Oct. 28	40.00
Apricot Queen. Orange bronze.....	Aug. 29	L. F. Inc.	Disbud	Nov. 1	40.00
Bronze Izola. Reddish bronze	Aug. 29	Int. Anem.	Disbud	Nov. 1	40.00
Red Izola. Deep red	Aug. 29	Int. Anem.	Disbud	Nov. 1	40.00

Pot Plant Varieties

BRONZE and RED—Continued

Name and Description	Last Pinch	Type	Spray or Disbud	Matures	Rooted Price Per 1000
Indianapolis Bronze. Buff bronze.....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	\$40.00
Red Melba. Red	Aug. 29	L. Sing.	Disbud	Nov. 10	40.00
Bronze Masterpiece. Apricot bronze.....	Aug. 29	Int. Pom.	Disbud	Nov. 15	40.00
Gypsy. Pale reddish bronze.....	Aug. 29	S. Anem.	Spray	Nov. 15	40.00
Garnet King. Deep, bright red.....	Sept. 3	L.F. Dec.	Disbud	Nov. 18	40.00
Legal Tender. Bronze and gold.....	Sept. 3	Int. Dec.	Spray	Nov. 20	40.00
Red Rolinda. Deep reddish bronze.....	Sept. 8	Int. Anem.	Spray	Nov. 23	40.00
Bronze Frick. Light bronze.....	Sept. 8	L.F. Inc.	Disbud	Nov. 25	40.00

PINK

Early October. Light lavender.....	Aug. 24	L.F. Inc.	Disbud	Oct. 10	70.00
Jewell. Bright rose pink.....	Aug. 24	S. Pom.	Spray	Oct. 15	40.00
Justrite. Light rose pink.....	Aug. 24	L.F. Inc.	Disbud	Oct. 15	40.00
Pink Izola. Lavender	Aug. 29	Int. Anem.	Disbud	Nov. 1	40.00
Indianapolis Pink. Deep lavender.....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	40.00
Thyra. Dark pink	Aug. 29	L. Pom.	Disbud	Nov. 10	40.00
Queen of Pinks. (Pink Mandel.) Lavender.....	Aug. 29	L. Pom.	Disbud	Nov. 10	40.00
Masterpiece. Tourmaline pink	Aug. 29	Int. Pom.	Disbud	Nov. 15	40.00
Helen Frick. Rose pink.....	Sept. 3	L.F. Inc.	Disbud	Nov. 25	40.00
Beautiful Lady. Deep lavender rays with cream white cushion	Sept. 3	L. Anem.	Disbud	Nov. 25	40.00

Helen Frick

FERMATE

This new organic fungicide has proven of great value to mum growers in controlling Septoria Leaf Spot. Fermate is highly effective against many fungi including those causing damping-off on the propagating benches. Recommended by many Experiment Station investigators.

Fermate is compatible with Arsenate of Lead, Loro and Nicofume combinations.

3 lb. bag 90c per lb.

25 lb. drum 75c per lb.



Hardy or Garden Varieties

The following varieties have been selected from a large list and have proven themselves best suited for cut flowers as well as general outdoor display. Many florists have grown these garden varieties in the cloth house and greenhouses with excellent results. No black cloth treatment is necessary for September and early October flowering.

There is also an increasing demand from the retail customers for small plants in the spring as well as field clumps in early fall. Might we suggest planting some of these garden varieties around your greenhouse? This will give an array of color in the fall when the annuals usually are finished blooming.

YELLOW

Name and Description	Last* Pinch	Size & Type	Matures	Rooted Price Per 1000
Barbara Cumming. (Yellow Normandie). Buff yellow.	June 20	Int. Dec.	Sept. 15	\$40.00
Early Yellow. Light golden yellow.....	June 20	S. Pom.	Sept. 15	40.00
Morning Star. Primrose yellow.....	June 20	Int. Dec.	Sept. 20	90.00
Pomponette. Light buff yellow.....	June 20	Int. Pom.	Sept. 20	40.00
King Midas. Light lemon yellow.....	June 30	Int. Dec.	Sept. 30	40.00
Judith Anderson. Golden yellow.....	July 8	S. Pom.	Oct. 15	40.00
Yellow Irene. Light lemon yellow. Sport from Irene..	July 8	S. Pom.	Oct. 18	40.00
Rodell Improved. Light lemon yellow.....	July 8	Int. Pom.	Oct. 20	40.00

WHITE

Silver Moon. Cream white.....	June 20	Int. Sing.	Sept. 15	40.00
Jean Cumming. Ivory white.....	June 20	Int. Dec.	Sept. 20	40.00
North Star. White	June 25	Int. Sing.	Sept. 25	90.00
Avalanche. White	July 4	Int. Dec.	Oct. 5	50.00
Uvalda. Cream white	July 4	Int. Pom.	Oct. 10	40.00
White Jewell. White tinged with light lavender.....	July 8	S. Pom.	Oct. 15	40.00
Silver Ball.	July 8	L. Pom.	Oct. 15	40.00
Irene.	July 8	S. Pom.	Oct. 18	40.00

BRONZE and RED

Early Bronze. Orange bronze	June 20	6. Pom.	Sept. 15	40.00
Nancy Copeland. Spectrum red.....	June 25	Int. Sing.	Sept. 25	40.00
Burgundy. Wine red	July 4	Int. Dec.	Oct. 5	40.00
Ruby Pompon. Ruby crimson	July 4	Int. Pom.	Oct. 5	70.00
Caliph. Deep red	July 4	Int. Dec.	Oct. 8	40.00
Red Velvet. Velvety crimson	July 4	Int. Dec.	Oct. 8	70.00
Aviator. Coppery red	July 4	Int. Dec.	Oct. 10	90.00
Indian Summer. Orange bronze	July 8	Int. Dec.	Oct. 15	40.00

PINK

Early Wonder. Lavender	June 20	Int. Dec.	Sept. 25	40.00
Morning Glow. Mauve pink	June 25	S. Dec.	Sept. 25	90.00
Jean Treadway. Light rose pink with dark center....	June 30	Int. Dec.	Oct. 1	40.00
Mrs. du Pont. Peach pink shading to rosy salmon....	July 4	Int. Dec.	Oct. 5	50.00
Lavender Lady. Lavender	July 4	Int. Dec.	Oct. 8	50.00
Allegro. Shrimp pink	July 8	Int. Dec.	Oct. 15	90.00
Jewell. Lavender	July 8	S. Pom.	Oct. 15	40.00
Dark Pink Jewell. Deep Lavender. Sport from Jewell.	July 8	S. Pom.	Oct. 15	40.00

*Pinch three weeks later if wanted for plant sale or use in landscape border.

Fred C.

Gloeckner

& Company,
Incorporated

15 East 26th Street
New York 10, N. Y.

CHRYSANTHEMUM CUTTING ORDER

Ship To:

Date of Order				When Required				Ship Via:					
Quan.	Variety	Price	Amt.	Quan.	Variety	Price	Amt.	Quan.	Variety	Price	Amt.	Quan.	Variety
	D. P. Supreme	4			Indianola	4			Oct. Rose	4			Sun
Adelaide	4			D. P. Valencia	4			Ind. Summer	4			Omega	9
Alameda	4			Debonair	9			Irene	4			Orch. Beauty	4
Albatross	4			Dec. Gl.—Lg.	4			Isobel	4			Orch. Queen	4
Allegro	9			Dec. Gold	4			Ivanhoe	9			Pearl	4
Ambassador	4			Dec. White	7			Ivory Snow	7			Penrod	4
Anaconda	5			Derigold	4			Jane	4			Pink Chief	4
Apr. Queen	4			Detroit News	4			J. Cumming	4			Pink Dot	4
Apr. Valencia	5			Dot Turner	4			J. Elizabeth	4			Pink Izola	4
Arcadia	4			Early Bronze	4			J. Treadway	4			Pink Mistletoe	4
Argo	7			Early October	7			Jemima	4			Pink Pearl	4
Avalanche	5			Early Wonder	4			Jessie	4			Pk. Treas. Is.	4
Aviator	9			Early Yellow	4			Jewell	4			Pink Turner	4
B. Cumming	4			Ed. Seidewitz	4			Jud. Anderson	4			Pinocchio	9
Barcarole	9			Enchantress	4			Justrite	4			Pixie	5
Beaut. Lady	4			Europa	4			J. W. Prince	4			P'm. Dec. GPy	4
Betsy Ross	4			Fire Bird	4			King Midas	4			Pomponette	4
Bittersweet	9			Freida	4			Lakine	9			Princeton	4
Blanche	4			Friendly Rival	4			Lav. Lady	5			Priscilla	7
Blaz. Gold	4			Garnet King	4			Legal Tender	4			Prosperity	4
Bon. Deluxe	4			Garza Supreme	4			Lillian Doty	4			Quaker Maid	4
Brocade	9			Gladys Pearson	4			Little America	4			Queen 'o Pinks	4
Br. Buck'ham	4			Gleam	4			Lodestar	7			Red Daisy	4
Br. Bulkeley	4			Glitters	4			L. I. Beauty	4			Red Izola	4
Br. Daisy	4			Gold Coast	7			Major Bowes	4			Red Melba	4
Br. Frick	4			Gold Lode	4			M. Moeller	9			R. Princeton	4
Br. Goldsmith	7			Goldsmith	4			M. Depetris	4			Red Rolinda	4
Br. Izola	4			Gld. Emblem	9			Marketeer	4			Red Rust	9
B. Masterpiece	4			Golden Glory	4			Mary L. Hall	4			Red Velvet	7
Br. Mistletos	4			Golden Herald	4			Masterpiece	4			Revelation	5
Br. Or. Queen	4			Golden Jane	5			Matchless	9			Rev. Bushnell	4
Burgundy	4			Gld. Mistletos	4			Mefo	4			R. Mandel	4
Caliph	4			Gld. Mrs. Ross	4			Meteore	7			Riviera	5
Cameo	4			Golden October	4			Minong	4			Robin Hood	4
Capt. Cook	4			Gldn. Pearson	4			Minuet	7			Rodell Imp.	4
Cardonia	4			Golden Spray	4			Monument	4			Roman Bronze	4
Carnelia	4			Gldn. Surprise	5			Morn. Glow	9			Rosalind	4
Carol'n Yosick	9			Good News	4			Morn. Star	9			R'y'l Crimson	4
Cassandra	5			Granite State	9			Mrs. Bulkeley	4			Royal Queen	4
Catherine	4			Gypsy	4			Mrs. Du Pont	5			Ruby Pompon	7
Cavalcade	4			Harvester	9			Mrs. Kidder	4			Rusticon	9
Celestra	4			Has. Gold	4			Mrs. Roy	4			Sarong	4
Chattanooga	4			Has. Pink	4			N. Copeland	4			Seafom	5
Chic. Pearl	4			Helen Frick	4			Natoma	4			Sea Gull	4
Christina	4			Helios	4			Navaho	5			Shasta	4
Cincinnati	4			Hilda Bergen	4			Nevada	7			Silver Ball	4
Citronella	4			I. Dec. Beauty	4			New York	4			Silver Moon	4
Cordova	4			I. Tobin's Yel.	4			Norma	4			Silver Sheen	4
Crystal Jewell	4			I. Yel. Chatt.	4			North Star	9			Sm. Ea. White	4
D. P. Bulkeley	4			Ind. Bronze	4			Nuggets	4			Sm. L. White	4
Dk. Pk. Jewell	4			Ind. Pink	4			Oak Leaf	4			Snow	4
D. P. Norma	4			Ind. White	4			Oct. Bronze	4			Snow White	4
D. P. Or. Qu'n	9			Ind. Yellow	4			Oct. Pink	4			Sunglow	4

WRITE ANY SPECIAL INSTRUCTIONS ON OTHER SIDE

FROM _____

Fred C.
Gloeckner
&
Company,
Incorporated

15 East 26th Street
New York 10, N. Y.



Index

A		F		M		S	
ADELAIDE	35	FIRE BIRD	35	MARIE DEPETRIS	32, 38	SARONG	36
ALAMEDA	33, 38	FREIDA	37	MARKEETER	32, 38	SEAFOAM	31, 34
ALLEGRO	31, 40	FRIENDLY RIVAL	32, 38	MARY L. HALL	34	SEA GULL	34
AMBASSADOR	32	G		MASTERPIECE	35, 39	SHASTA	37
ANACONDA	33	GARNET KING	33, 39	MATCHLESS	30, 34	SILVER BALL	34, 40
APRICOT QUEEN	33, 38	GARZA SUPREME	37	MEFO	32	SILVER MOON	40
APRICOT VALENCIA	36	GLADYS PEARSON	33	METEORE	32	SILVER SHEEN	32
ARCADIA	34	GLEAM	37	MINONG	34, 38	SM. EARLY WHITE	32
AVALANCHE	40	GLITTERS	33, 38	MONUMENT	32	SM. LATE WHITE	32
AVIATOR	31, 40	GOLD COAST	26, 34	MORNING GLOW	31, 40	SNOW	34
B		GOLD LODGE	32, 38	MORNING STAR	31, 40	SNOW WHITE	32, 38
BARBARA CUMMING	40	GOLDSMITH	34	MRS. BULKELEY	35	SUNGLOW	32, 38
BARCAROLE	31, 34	GOLDEN EMBLEM	30, 34	MRS. DU PONT	40	SUN GOLD	32, 38
BEAUTIFUL LADY	37, 39	GOLDEN GLORY	32, 38	MRS. KIDDER	32, 38	SUNKIST	27, 36
BETSY ROSS	32	GOLDEN HERALD	34	MRS. ROY	33	SUNNYSIDE	29, 34
BITTERSWEET	36	GOLDEN JANE	36	N		SUNRAY	37, 38
BLANCHE	37	GOLDEN MISTLETOE	32	NANCY COPELAND	40	SUZANNE MILLER	37
BLAZING GOLD	32, 38	GOLDEN MRS. ROSS	32	NATOMA	35	SYLVANNA	31, 36
BONNAFON DELUXE	38	GOLDEN OCTOBER	32	NAVAHO	31, 35	T	
BROCADE	28, 36	GOLDEN PEARSON	32	NEVADA	37	THANKS. PINK	33
BR. BUCKINGHAM	36	GOLDEN SPRAY	34, 38	NEW YORK	35	THE TITAN	37
BR. BULKELEY	35	GOLDEN SURPRISE	34	NORMA	37	THYRA	35, 39
BR. DAISY	36	GOOD NEWS	32	NORTH STAR	40	U	
BR. FRICK	33, 39	GRANITE STATE	38	NUGGETS	34	UNEEADA	35
BR. GOLDSMITH	31, 35	GYPSY	39	O		USONA	35
BR. IZOLA	37, 38	H		OAK LEAF	33	UYALDA	34, 40
BR. MASTERPIECE	35, 39	HARVESTER	29, 32	OCT. BRONZE	36	V	
BR. MISTLETOE	33	HAS. GOLD	34	OCT. PINK	36	VALENCIA	36
BR. ORCHID QUEEN	33	HAS. PINK	36	OCT. ROSE	33	VESPER	29, 34
BR. SUPREME	37	HELEN FRICK	33, 39	OMEGA	28, 34	VIBRANT	34
BURGUNDY	40	HELIOS	37	ORCHID BEAUTY	37	W	
C		HILDA BERGEN	33, 38	ORCHID QUEEN	33	WH. ANEMONE	37
CALIPH	40	I		P		W. H. BUCKINGHAM	36
CAMEO	34	IMP. DEC. BEAUTY	32	PEARL	34	WH. DOTY	34
CAPT. COOK	35	IMP. TOBIN'S YEL.	32	PENROD	32	WH. FRIEDA	37
CARDONIA	32, 38	IMP. YEL. CHATT.	32	PINK CHIEF	33	WH. FRICK	32, 38
CARNELIA	36	IND. BRONZE	33, 39	PINK DOT	35	WH. IZOLA	37, 38
CAROLINE YOSICK	26, 35	IND. PINK	33, 39	PINK IZOLA	37, 39	WH. JEWELL	34, 38, 40
CASSANDRA	31, 35	IND. WHITE	32, 38	PINK MISTLETOE	33	WH. MENSA	36
CATHERINE	35	IND. YELLOW	31, 32, 38	PINK PEARL	35	WH. MISTLETOE	32
CAVALCADE	35	INDIANOLA	33, 38	PINK TREASURE ISLAND	35	WH. NORMA	37
CELESTRA	32	INDIAN SUMMER	40	PINK TURNER	33	WH. SUPREME	37
CHATTANOOGA	32	IRENE	34, 38, 40	PINOCCHIO	30, 34	WH. YULETIDE	34
CHICAGO PEARL	34	ISOBEL	35	PIXIE	31, 34	WHITTIER	32
CHRISTINA	32, 38	IVANHOE	33	POM. DEC. GLORY	34	WM. TURNER	32
CINCINNATI	38	IVORY SNOW	34	POMPONETTE	38, 40	Y	
CITRONELLA	32	J		PRINCETON	34	VALENCIA	36
CORDOVA	34	JANE	36	PRISCILLA	34	VESPER	29, 34
CRYSTAL JEWELL	34	JEAN CUMMING	40	PROSPERITY	35	VIBRANT	34
D		JEAN ELIZABETH	31, 32	Q		W	
DK. PK. BULKELEY	35	JEAN TREADWAY	40	QUAKER MAID	32	WH. AMBASSADOR	32
DK. PK. JEWELL	35, 40	JEMIMA	35	QUEEN OF PINKS	39	YEL. ARCADIA	34
DK. PK. NORMA	37	JESSIE	35	R		YEL. BEAUTY	38
DK. PK. ORCHID QUEEN	28, 33	JEWELL	35, 39, 40	RED DAISY	36	YEL. BUSHNELL	34
DK. PK. SUPREME	37	JUDITH ANDERSON	40	RED IZOLA	37, 38	YEL. CAMEO	31, 34
DK. PK. VALENCIA	36	JUSTRITE	33, 39	RED MELBA	36, 39	YEL. CORDOVA	34
DEBONAIR	27, 35	J. W. PRINCE	33	RED PRINCETON	35	YEL. DAISY	36
DEC. GLORY—LARGE	32	K		RED ROLINDA	37, 39	YEL. DOT	34
DEC. GOLD	34	KING MIDAS	40	RED RUST	27, 35	YEL. FELLOW	34, 38
DEC. WHITE	32	L		RED VELVET	40	YEL. FREIDA	37
DERIGOLD	34	LAKME	26, 34	REVELATION	29, 34	YEL. GARZA	37
DETROIT NEWS	33	LEGAL TENDER	35, 39	REV. BUSHNELL	34	YEL. HAMMER	34
DOROTHY TURNER	35	LILLIAN DOTY	35	RICHARD MANDEL	38	YEL. IRENE	34, 40
E		LITTLE AMERICA	37, 38	RIVIERA	35	YEL. MEFO	32
EARLY BRONZE	38, 40	LODESTAR	36	ROBIN HOOD	35	YEL. MONUMENT	32
EARLY OCTOBER	33, 39	L. I. BEAUTY	37, 38	RODELL IMP.	34, 38, 40	YEL. ROLINDA	37, 38
EARLY WONDER	40	M		ROMAN BRONZE	35	YEL. SEA GULL	34
EARLY YELLOW	38, 40	MAJOR BOWES	33	ROSALIND	36	YEL. SNOW	34
ED. SEIDEWITZ	33	MARGARET MOELLER	32	ROYAL CRIMSON	35	YEL. SUPREME	37
ENCHANTRESS	37			ROYAL QUEEN	34	YEL. TURNER	32
EUROPA	36			RUBY POMPON	40	YOLANDA	37
						YUKON	36

ACIDITY	2	DISBUDDING	6	NEMATODE, FOLIAR	23	SHADING	
AERATION	2	DODDER	24	NEMATODE, ROOT KNOT	23	INFORMATION	12-16
AIR FREIGHT	1	FERTILIZERS	4	NOVELTY CHRYSANTHEMUMS	26-31	SHIPPING FLOWERS	10
ANEMONE VARIETIES	37	GARDEN VARIETIES	40	PESTS AND THEIR CONTROL	23-25	SINGLE VARIETIES	36
APHIDS	19	GREENHOUSE		PINCHING	5	SOILS	2
BLINDNESS	7	LEAF TYER	20	PLANTING	3	SOW BUGS	22
CHEMICAL STERILIZATION	2	INSECTS AND THEIR CONTROL	19-22	POMPON VARIETIES	34-35	STEAM STERILIZATION	2
CHRYSANTHEMUMS THE YEAR AROUND	8-9	LARGE FLOWEDED VARIETIES	32-33	POT PLANT CULTURE	17-18	SYMPHYLIDS	21
CLOTH HOUSE	11	LEAF MINER	19	POT PLANT		TARNISHED PLANT BUG	22
CORN EAR WORM	20	MEALY BUGS	21	VARIETIES	38-39	TAKING BUD	6
CULTURAL POINTERS	1-10	MIDGE	19	RED SPIDER	21	TEMPERATURE	7
CULTURED STOCK	10	MILDEW	23	RUST	24	THRIPS	22
CUT WORMS	20	MITES	21	SEPTORIA LEAF SPOT	24	TIME PINCHING	5
CUTTING FLOWERS	10	MULCHES	4			UNROOTED CUTTINGS	1
						VERTICILLIUM WILT	24
						WATERING	7



Gloeckner
Chrysanthemum
Manual